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THE EVOLUTION OF PREVENTIVE MEDICINE *

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For so long a time as history records, man has been terrified by pestilence and has sought escape. By one means or another he has tried to ward off disease. All through the ages, but particularly in Italy and during the Renaissance, whenever epidemic diseases appeared, organized effort was made by the community to apply such preventive measures as the science or the superstition of the time had to offer. With the passing of the danger, the temporary sanitary organization lapsed. It has been less than a century that a permanent government organization for health purposes has been maintained.

There have been three fairly well defined phases of this movement. The first concerned itself chiefly with the environment, the second with the isolation of the sick, and the present with personal instruction and with cure.

First Period

The modern health movement had its origin in England nearly a hundred years ago in the great wave of altruism which strove, in so many directions, to make more bearable the hard lot of most of mankind. When one reads specific accounts of the filth, crowding, poverty, sickness, child exploitation and excessive hours of labor, one is not surprised that, in a country like England, many were found to undertake the battle for reform. It was seen that one of the greatest afflictions and handicaps of the poor is sickness; and to lessen its amount became the ambition of Edwin Chadwick and his co-workers. The Public Health Act and General Board of Health of 1848 were the outcome of their labors. Interest in public health developed more slowly in the United States, largely, perhaps, owing to the slower development of the evils of urbanization. On both sides of the Atlantic, repeated outbreaks of cholera, and in this country, of yellow fever, did much to arouse the public.

THE FILTH THEORY

During its first thirty or forty years, modern preventive medicine was almost completely dominated by the filth theory of disease. The central idea was that decomposition and fermentation of animal and vegetable matter give rise to poisonous gases or, as some thought, to living germs, which are carried by the air and, falling on human beings, cause in them the epidemic diseases. It was also thought that, besides causing specific diseases like cholera, typhus fever and diphtheria, these emanations from filth could undermine the general health and pave the way for infections that might otherwise be resisted or lead to all sorts of debilitated conditions. As Neil Arnott said: "If you allow sources of aerial impurity to exist in or around dwellings, you are poisoning the people; and while many may die at early ages of fever and other acute diseases, the remainder will have their health impaired and their lives shortened." The means to prevent these evils, according to Arnott, are scavenging, sewers and ventilation. Decomposition is the source of disease. Foul odors are a sign of decay and are a sign that the air is bearing the emanations which are the seeds of sickness and death. Everything which smells bad is dangerous. Such were the slogans of the time.

The principal aims of these early promoters of public health were clean streets and yards, clean houses, removal of all "nuisances," the prevention of crowding, both of houses on the land and of people in the houses, better house construction, the building of sewers, the construction of water closets or yard privies, and the supply of unpolluted water. It it worth noting that special emphasis was not laid on pure water at first, for it was hard to convince such firm believers in airborne infection that water-borne infection is far more important.

Now, all these aims are most desirable. Comfort and decency, as well as health, demand them. That we have cleaner streets and areas than our ancestors, that we have good plumbing, that our houses are better and that most of our cities have a plentiful supply of good water, which, after use, is carried away by sewers, is due in no small measure to the efforts of the early English sanitarians. That these things would have come in time is probable; but that progress would have been slower is also probable, as is indicated by the comparatively backward state of sanitation in France, which did not feel the direct influence of the English reformers.

GOOD RESULTS

We are here interested only in the effect of these preventive measures on health. It is customary to point to the fall in the general death rate as proof that these measures were successful. The death rate certainly decreased in England, as it has generally over western Europe and in this country. In many of the large cities, where it was the highest, it has been more than cut in half. To claim that the whole of this gain is due to the special measures making for cleanliness is entirely unwarranted. The death of a human being is due to the operation of a great number of causes which it is difficult to unravel. That many causes have

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operated to reduce the death rate besides such sanitary reforms is certain. That some of the decrease was due to these reforms also is certain.

We can now be sure that the proper disposal of human excreta in sewers or privies and the introduction of a pure water supply have been the chief cause of the banishment of cholera and typhoid fever and the diminution of diarrhea. That less overcrowding has been of some help in keeping people free from vermin and hence from typhus fever is probable. It is probable, too, that better housing and plenty of water have helped to make people neater and hence have been of some service in preventing those diseases that are spread by the transfer of the secretions of the nose and mouth; but success in the control of these diseases has not been so startling as to make such a claim of importance.

EARLY SANITATION IN THE UNITED STATES

Our ideas in this country about public health were derived from the English, though we delayed some years in putting them into practice. We promptly accepted the filth theory. The medical profession was strongly influenced in this by the teaching of Murchison, the great English clinician, who was thought most highly of and who strongly urged that diseases arise, de novo, in filth. The epidemic disease most dreaded in the United States was yellow fever; and its distribution seemed to fit in very well with this idea, though we know now that filth has nothing to do with it. The plumbers were especially active in preaching the dangers of sewer air, and the writings of Colonel Waring did much to popularize the idea that municipal cleanliness was all there is in public health. In 1876, when sanitarians across the water were beginning to appreciate the great importance of contagion as a cause of disease, Waring, in forceful and popular language, was teaching that diseases are bred in filth, that all decay is dangerous, that disease poison is air-borne, and that the slightest plumbing defect may flood a house with death-dealing sewer gas. He says that nervous toothache, neuralgia, scarlet fever, cholera, dysentery, diphtheria, cerebrospinal meningitis and consumption are caused by foul air or foul water. In 1877, my own city was visited by an exceedingly severe outbreak of diphtheria causing a mortality of 331 per hundred thousand living. Scarcely any one considered it contagious, and no isolation was attempted. The disease was attributed to foul air from poor drainage and the digging up of the streets. Up to the time of his death in 1889, my predecessor in office maintained that the evidence pointed to scarlet fever as a noncontagious disease caused by some atmospheric epidemic influence.

FILTH THEORY WAS DOMINANT

How exclusively the filth theory dominated preventive medicine is well illustrated by the textbooks of the time, which devoted scarcely one tenth of their space to the direct control of contagion, and the remainder to man's environment. In Boston, the sole duty of the "superintendent of health" was street cleaning and scavenging. The first report of my predecessor, the first superintendent of health of Providence, who was elected in 1856, dealt almost wholly with nuisances. The first report of the Metropolitan Board of Health in New York, organized in 1866, because of cholera, besides an account of the cases and hospitalization of that disease and quarantine, is almost entirely devoted to nuisances, decayed food, offensive trades and the like. About the only employees of boards of health in those days were nuisance inspectors. As late as 1898, after the American occupation of Havana, our government officials, even health officials, were so imbued with the idea that municipal house cleaning is synonymous with preventive medicine, that an engineer, Colonel Waring, was sent to Havana to clean the city and thereby exterminate yellow fever, which had been endemic there for over a century. He did his work so well that all were agreed that Havana had been made the cleanest city in the western world. You all know the sequel. The next year there was an unusually severe outbreak of this disease, which was especially prevalent in the better portions of the city.

Even in 1916, a more energetic abatement of nuisances was advocated and put in practice as a means of controlling infantile paralysis, though there was no more reason for thinking this would control the disease than would the suppression of automobiles or the elimination of mosquitoes.

In a city of more than 100,000 inhabitants which I recently visited, it was found that the control of the contagious diseases, with the exception of tuberculosis, ophthalmia and the venereal diseases, is made a side issue for the two nuisance inspectors. The ancient epidemiologic status of the city is well illustrated by the record card (3 by 5 inches) for contagious diseases which, besides the name and address of the patient, calls only for information as to the sewer, privy, cesspool, water closet, yard, cellar, ash barrel and swill pail. Who will assert that the hand of dead theories does not rest heavily in some places?

ERRORS IN EARLY THEORIES

Although there were some important truths in the generalizations of the early promoters of public health, and although their projects for civic betterment saved many lives and did much for human comfort and convenience, there were several errors which have had an unfortunate influence on preventive medicine and still have today.

One of these is that disease breeds in filth instead of being merely carried in filth.

Another is that all kinds of dirt are dangerous, not merely the secretions and excretions of the human body.

A third unfortunate hypothesis is that infectious diseases are usually air-borne.

FILTH DOES NOT BREED DISEASE

We now know that infectious disease does not breed in filth, or, with the rarest exception, in anything else except the bodies of men and animals. The infectious diseases are transmissible diseases. They spread from person to person. They do not arise afresh in decaying matter. Most of our more exact knowledge, and it is still far too inexact, is due to the laboratory. Nevertheless, the keen mind of William Budd did not require laboratory aid to show that typhoid fever does not breed in filth, but is a contagious disease which is spread by means of filth, a contention which was entirely foreign to the orthodox medical opinion of the time. The belief that the germs of disease propagate in filth and even arise de novo doubtless seriously retarded sanitary progress by turning men's minds in the wrong direction.

This theory had a decidedly bad influence on the popular mind, an influence which it will require yet many long years to counteract. A great many people,

and educated people too, believe that filth is a real source of disease. This theory has been crystallized into law in many of our states, a law which provides for the abatement of "any nuisance, source of filth or cause of sickness." The garbage pail, the manure pile, the cesspool, the privy vault, decaying leaves and rubbish, an odorous slaughter house, a public dump, a dead cat or a heap of oyster shells are still, in the minds of the public, a "source of sickness," and it is still believed that it is the first duty of the health officials to cause their abatement.

SOME FILTH DANGEROUS

We now know that although some kinds of dirt are dangerous, extremely dangerous, most kinds are not. It is the dirt that carries the secretions and excretions of the body which is dangerous. The generalizations of the early sanitarians as to the causes of disease included human excrement, and it was because they were right about this and because they removed this kind of dirt from contact with mankind that their successes in disease prevention were attained. Although fearing the dangers from feces and urine, because these offend the senses, they forget the less noticeable but dangerous secretions which are transmitted on every common object which goes to the mouth or nose, and most of all on human fingers. Perhaps our delay in recognizing this mode of infection is in no small part due to the undue importance that was attached to visible filth.

RÔLE OF THE AIR

The theory that infection is usually air-borne greatly retarded the recognition of the great importance of fairly direct contact in the spread of contagious disease. It prevented the employment of economical and effective means of controlling these diseases, and created in the public mind a needless and harmful fear.

The progress of sanitary science was slow. It was long in breaking away from the theories of the early sanitarians; their influence was felt still longer on the practice of health officers, and even now in large measure dominates public opinion. People generally think that the chief duty of the health officer is to abate nuisances and eliminate bad odors. For a number of weeks the health department in Providence has been deluged with complaints about odors from certain new industries. This nuisance has been tremendously exaggerated by old time ideas about air-borne disease and the danger of odors. So far as the nuisance is a real one it should be dealt with by the police department and the engineering department; but the public traditionally looks to the health department, and much time is wasted which should be given to real health work, such as nutritional clinics, tuberculosis dispensaries and the control of venereal diseases.

NUISANCE ABATEMENT A POLICE FUNCTION

In the evolution of sanitary practice, the older and wealthier communities have largely outgrown the first stage of public health work. The streets have been sewered, privy vaults have been abolished, water closets have been properly installed, and good water supplies, properly cared for, have been introduced. The public works or engineering departments should be and usually are competent to look after the maintenance and extension of these improvements. There are a vast number of minor nuisances connected with the care of cellars, yards, lots, garbage disposal, dumps and defective drainage which it is still the fashion to expect the health department to look after, though they usually have scarcely the remotest relation to health. All this should be turned over to the police department which, with its large number of patrolmen, is much better equipped. This was nominally done in Providence a few months ago, though it has been impossible, as yet, to make the public fully realize this. Some Southern friends have criticized me for belittling the relation of nuisances and of the environment generally to disease. Where typhoid fever and dysentery and hookworm infestation abound, where 95 per cent. of the schoolhouses have no privy, where cities are unsewered and surface wells furnish the water supply, the health officer may well give much time to environment, and the sanitary inspector is a real promoter of health. When these communities have learned to dispose of their excreta as safely as have New York and Boston, Brookline, Montclair and Evanston, where the typhoid fever rate almost rivals that of the English cities, they, too, can turn over to the police what remains of nuisance control.

SECOND PERIOD

There have always been medical men who realized the importance of contagion in the causation of epidemic disease. For a time, as has been shown, it was the fashion to lay undue emphasis on the surroundings of man as a source of disease, and to minimize the danger from man himself. Gradually, however, the pendulum began to swing the other way, and it was realized more and more that most infectious diseases spread from man to man, commonly in a direct manner. The belief grew that for their control the isolation of the sick person is necessary and effective; hence the demand for the notification of communicable diseases to the health officials so that they might enforce isolation. This new attitude of sanitarians led in England to the passage of the Public Health Act of 1879.

While clinical evidence was accumulating slowly as to the importance of contagion and its mechanism, the phenomenal development of laboratory methods and the identification of a number of disease germs extended our knowledge tremendously and suddenly. It was one of the chief reasons for the increased attention given to this class of diseases that the laboratory could serve as the handmaid of the health officer for the detection and control of cases. From 1890 up to the present time the direct control of communicable diseases has been the chief function of the health officer.

INSECT TRANSMISSION

Perhaps the chief merit of this period has been a constantly increasing tendency to suspect broad generalizations and to strive to find for each disease exactly how infection passes from person to person and where the point is at which the chain of contagion can most easily be broken. At first, crude isolation was urged for every communicable disease, but it was so often found useless that, toward the close of the nineteenth century, further study of the problem was demanded. Unquestionably, the most brilliant result of these studies was the discovery of insect transmission. It was demonstrated in 1893 for a disease of cattle by Smith and Kilborne. In the last year of the last century it was proved to be the mode of transmission of malaria, and in the last months of that year, of yellow fever. Within a short time, African sleeping sickness, bubonic plague and typhus fever, as well as several less important diseases, were shown to be spread from person to person by insect carriers. That insects

spread disease is the most important discovery of preventive medicine. If it had not been for the interruption of the war, yellow fever might now, perhaps, have become extinct. Typhus fever, the scourge of all wars, and prevalent among allied and enemy forces, was wonderfully controlled on the western battle front. A successful fight is being waged in every direction against malaria. We know that in civilized communities bubonic plague is truly a preventable disease. It is pleasant to remember that, in all these wonderful epoch-making discoveries, English speaking men have played the chief and almost exclusive rôle.

ISOLATION OF SMALLPOX

That the isolation of the sick in the house or in a hospital has prevented much infection and saved many lives, no one doubts. Nevertheless, it is by no means easy to find as much unimpeachable evidence as one would wish. It seems highly probable that the greatly diminished prevalence of smallpox is to a great extent due to isolation. Vaccination has been doubtless a more important factor, but the notoriously unprotected condition of such a large part of the population of England and the United States makes it unlikely that the lessened amount of the disease is due to that alone. There is very little doubt that immense numbers of our people, if exposed directly to smallpox, would contract it. The reason they do not have it is that they are not exposed to it; in other words, those who do have it are isolated. If isolation is successful in any disease it ought to be in smallpox, for this disease, when typical, is easily recognized; and people are so afraid of it that the public strenuously demands rigid isolation.

MILD TYPE OF SMALLPOX

When smallpox assumes a mild type, this does not hold true. Great numbers of cases are not seen by a physician and are unrecognized and therefore not isolated. For nearly twenty-five years such a type of smallpox has prevailed in the United States, and doubtless as many as 50,000 cases have occurred in a single year. During this period the severe type of smallpox has prevailed extensively only over a period of about two years, and then only to a fraction of the extent of the mild type. Scores and scores of times a virulent type has been introduced from abroad, but in nearly every instance its spread has been promptly checked by isolation, aided, of course, by vaccination.

ISOLATION MAKES DISEASE MILDER

The desire to control scarlet fever, which was then a much dreaded disease, was deemed in England an urgent reason for insisting on notification so that isolation might be enforced. That it might be the better enforced, expensive hospitals were constructed; and in some cities considerably more than 90 per cent. of persons with recognized cases of the disease were induced or compelled to enter the hospital. It was frankly hoped that such isolation would come near stamping out the disease. These hopes, however, have not been realized, but I am nevertheless inclined to believe that isolation has been highly successful. It is true that the disease is almost, if not quite, as prevalent as in former years; but the number of deaths has decreased most remarkably. The disease is of a much milder type than formerly. There are many who believe that this is only a periodic change to which this disease is subject, and that it is likely again at any time to assume its old malignancy. Every little while a few cases of a virulent strain do appear, sometimes in one place and sometimes in another; but the virulent strain is quickly recognized, isolated and wiped out. Severe cases are readily recognized and not easily concealed. Mild cases spread the disease. This view, that isolation may be a factor in keeping down the virulence of a disease by a process of selection, as a fancier breeds certain strains of his stock, has never received much consideration; but it seems to me that there is enough evidence in favor of it to warrant further study. This sort of selection probably would not be effective unless the disease happens to develop fairly permanent strains of varying severity. Perhaps not all diseases do this. Perhaps few of them do; but there is considerable evidence that such differing strains are found in smallpox and scarlet fever.

ISOLATION OF MEASLES

Most health officers have been decidedly discouraged about the value of isolating measles. Its great contagiousness, and the long infectious period before the rash appears, apparently make isolation a failure. That in cities and army camps it has been a failure, probably all will agree. Although measles is one of the most unpromising diseases for isolation, this procedure is by no means always a failure. In small communities and rural districts, in which half our population live, it has had much success. Years ago I was much impressed by the experience of Michigan with this disease. The health department of that state published, year after year, the experience of the small communities in controlling the common contagious diseases. It was shown to what extent disease spread in those communities where isolation and disinfection were practiced, as compared with those where they were not. The comparison was of the number of cases per outbreak in the two classes of communities. According to these figures, isolation cut down the measles cases 94 per cent. This was most astounding to one whose experience had been in a city of nearly 200,000. A study of the individual township and village reports made it clear. In small communities, it was often possible to get hold of the first case or the first two or three cases; and often, owing to the comparatively few points of contact in such communities, these had done no harm. Isolation was effective. Sometimes, of course, it was not. If, however, nothing was done, the disease often spread to all that were susceptible. That isolation does protect was shown plainly enough in the camps in 1917. Most of the men from the cities had had measles. Great numbers of those from rural sections had not. Their natural isolation had saved them from it as it had from many other contagious diseases. It is so difficult to trace the source of infection in a large community, whether civil or military, and the points of contact are so numerous and in civil communities so difficult to control, that isolation is usually far less effective in such than in small communities. Unfortunately, health administration is usually much less efficient in the small place, which goes far to offset their natural advantage of size. Even now measles, scarlet fever and diphtheria are less prevalent in rural sections, and it is a reasonable hope that with efficient administration they could be made far less prevalent.

MARITIME QUARANTINE

The same causes that make isolation more effective in small communities than in large make it easier to control outbreaks at the beginning than when they have

gained a foothold. It may be impossible to control a disease when it has become widespread, but the chance may be good if it is discovered before the cases have become numerous. This has happened a great many times during the last twenty-five years with the virulent type of smallpox. Indeed, only two or three times has there been an extensive outbreak of this type during this period. Hence it is that quarantine is of great value. This country is very free from severe smallpox and from typhus fever, cholera and bubonic plague. Where most of the travel is by steamships, it is comparatively easy to discover most cases of dangerous exotic disease at the port of debarkation, and when discovered to isolate them until danger has passed. The old fashioned, senseless quarantine which held every ship for an arbitrary period, and which considered the ship itself and cargo as dangerous as the passengers, has passed away. The tendency is to make the restriction on travel and the inconvenience to the ship as slight as possible. With more accurate knowledge they can doubtless be still further lightened, and efficiency at the same time increased. The restriction of inland communication is theoretically as useful as maritime quarantine; but the avenues of travel are so numerous that it has been found to be impossible to control them. Endless trouble, expense and hardship are caused, and all to no purpose. Infection is sure to creep through. Even before the development of modern means of communication, "shotgun" quarantine was deemed a failure. The control of travel was attempted on a considerable scale during the great infantile paralysis outbreak of 1916, but it is generally admitted that it was entirely ineffective.

TYPHUS FEVER KEPT OUT BY QUARANTINE

It seems highly probable that the chief reason for the decrease in typhus fever has been the greater cleanliness of people. It is certain that in our large cities people are not as lousy as they were forty years ago. Nevertheless there are a good many lice now, and I feel sure that there would have been much more typhus in the United States if the incoming cases from Europe and Mexico had not been diligently sought for and isolated.

FAILURES OF ISOLATION

Much has been accomplished by the isolation in the home and in the hospital of the common contagious diseases, and perhaps still more by the isolation of the rarer and more dangerous diseases which only occasionally make their appearance in this country; but the health official of fifty years ago thought that far more would be accomplished. It was even hoped that some diseases, as scarlet fever, might be stamped out. Unfortunately, instead of this result, it is difficult to show that isolation has had much, if any, influence in our cities and considerable towns on the incidence of such diseases as scarlet fever, diphtheria, measles and whooping cough. As for meningitis, infantile paralysis, pneumonia and influenza, the evidence that isolation accomplishes anything is still more shadowy.

ADMINISTRATIVE DIFFICULTIES

Some of the reasons for this failure of isolation are what may be called administrative. In all communities it is difficult to find the source of each case of contagious disease. It is difficult to find contacts and keep them under supervision. All these difficulties are greatly enhanced in large communities. Then there is the difficulty of diagnosis. It is not easy, in many cases, for even experts to determine the presence of contagious disease, and a great many physicians have not had the training and experience to enable them to detect mild cases. In one disease at least, influenza, our knowledge is too uncertain for one to be very positive as to the existence of the disease. To be sure, during an epidemic, it is tolerably safe to make a guess; but the symptoms are so little characteristic that, taken by itself, an individual case is a doubtful case. Then, many persons are negligent. They procrastinate, and do not send for a physician until much harm has been done. Proper isolation, too, in many homes, is difficult or impossible, and hospitals are available for only a few.

DANGER OF PRODROMAL PERIOD

Important as these administrative difficulties are in the way of control, the difficulties due to the nature of disease are still greater. One of these is the contagiousness of the prodromal period, so called. In measles, for instance, there are several days of sickness before the rash appears, during which the patient is very infectious. The symptoms are those of a cold; and the patient, if an adult, or the parents, if a child, do not suspect measles. There is reason to believe that this is the most contagious stage, and in most cases the patient is well enough, for a time at least, to go to school or to work and give the disease to many others. Most people believe that this is the chief reason for the difficulty in controlling this disease. Smallpox, too, is contagious during the stage before the eruption; but the stage is shorter than measles, and in typical smallpox the patient is sicker and so less likely to do harm. The stage before the "whoop" in whooping cough is also the most contagious period and may last two weeks or more, so that the hope of controlling this disease by the isolation of cases after the whooping has developed is nil. Indeed, the most careful observers think there is very little danger of infection after the whooping stage has become well developed. In most of the other common contagious diseases the period before the characteristic symptoms and before the disease is likely to be recognized is the most contagious period; but, fortunately, it is shorter in the other diseases than in measles and whooping cough.

MISSED CASES

Another difficulty in controlling contagious diseases is the existence of so many mild and atypical cases—cases that at no time present the classical symptoms of the disease. Such cases are extremely common in diphtheria and scarlet fever. People cannot be expected to realize this, and they fail to call a physician and, so far as preventive medicine is concerned, the case is "missed." There are certainly cases of whooping cough without the whoop. Many persons have a slight rhinitis due to the germs of meningitis without ever suspecting that they have the disease, and if a medical man should see them he, too, would probably not suspect it. As these atypical cases, which are so generally missed cases, are usually mild, so that the patients mingle freely with the public during the period of the attack, they naturally are the cases that do most to spread the disease. Although clinicians have always recognized that there are some atypical cases of disease, they never began to realize how numerous they are until taught by the laboratory. The laboratory showed us how common are mild infections with the diphtheria bacillus, with the typhoid germ and with the germ of meningitis and, though it cannot as yet help

us with scarlet fever, it has put us on the lookout for atypical cases in this as in every other contagious disease.

CARRIERS

Forty years ago I imagined, as did every one else, that if we could isolate every *case* of contagious disease, the disease could be stamped out. We now know that this is far from true. The laboratory has taught us how numerous are the mild atypical cases, which, after all, are cases of illness. The laboratory too has taught us, what we never suspected before, that many recovering from infectious disease carry the infection long after they are well and that many others, from contact with the sick, also have acquired the germs and become healthy carriers of them. The carriers of virulent dihptheria germs are more numerous than are the cases, and the well carriers of meningitis germs are far more numerous still. Much harm and many outbreaks of sickness have been traced to typhoid carriers. Evidence points to many carriers of infantile paralysis. There are probably healthy carriers of nearly every infection, though they do not appear to be very numerous in measles and smallpox. The carrier problem presents great difficulties, as yet unsolved. It is because of the unrecognized prodromal period, because of mild and missed cases, and because of the carriers that decided limitations are set to usefulness of isolation.

FAILURES SHOULD BE ADMITTED

Health officers and laboratory workers alike have been loath to admit the failures in the control of contagious diseases, but they must be admitted; and the sooner, the better. The World War did much to disabuse men's minds and show the limits to the usefulness of isolation, as it did much to show the value of other means of preventing sickness and death, as well as the usefulness of isolation in some diseases. Nevertheless, many medical officers were much chagrined and disappointed that measles and mumps, bronchitis, pneumonia and influenza spread through the camps apparently uninfluenced by methods of control. There were many, however, who were not surprised at this result, for it had been their experience that these diseases had not been controlled in any considerable degree in large communities in civil life.

Now that we are no longer troubled by the fear of the free and widespread aerial transmission of disease, much of the old time rigorousness of isolation has disappeared. One of our most successful epidemiologists has said, "What is needed is not more isolation, but the isolation of more persons," meaning, thereby, that there is no need to place more restrictions about the sick, but there is great need of seeking out and controlling the missed cases.

Third Period

Thus far the promotion of public health has been largely a matter of compulsion. The state took away men's property and men's liberty. During the first stage the abatement of nuisances and the improvement of dwellings forced unwilling expenditures. The rigorous enforcement of isolation took away man's most cherished right, his personal liberty. Police work is not pleasant work. It is slow work, and he who does it finds it difficult to obtain the good will of those whom he coerces.

PERSONAL RESPONSIBILITY

During the latter years of the last century a new field of endeavor for the sanitarian began to open. It was formerly said that for every death from typhoid fever some one ought to be hung, meaning thereby the health officer. It was assumed that freedom from disease depended on community effort, on municipal housecleaning and on the zeal of the health officer. It came to be seen that this is only partly true, and that the individual can do as much, or more, to preserve his health as the state can do for him. It was realized that the fundamental difficulty is that he does not know how. Health officers, or quite as often, public spirited citizens holding no official position, began to see that it was somebody's opportunity and duty to show the people the road to health. Instead of compulsion, persuasion became the watchword. Assistance to right living was to be offered, and the people were to be persuaded to avail themselves of it.

TUBERCULOSIS MOVEMENT

This idea was first developed in connection with the prevention of tuberculosis. The disease was not to be stamped out by a reconstruction of dwellings, though it was recognized that good building laws provide dwellings in which it is easier for the occupants to lead a wholesome life. Nor was it planned to shut up every consumptive as long as he lived, though it was thought that forcible isolation might become necessary. The campaign against tuberculosis developed along the line of personal instruction, personal treatment and personal aid. The nature of the disease, so far as it is known, has been diligently taught. People have been instructed as to the dangers of contact and droplet and dust and milk infection. The well have been shown how to avoid these. The infected have been shown how to avoid transmitting infection. The clinic was opened so that every one might learn whether he had the disease. The nurse showed the way to the clinic. The sanatoriums promised cure to those who would come promptly, and the hospital offered to shelter those who were beyond cure and so help them to keep infection from their loved ones. This was a new kind of health work, in which the nurse supplanted the nuisance inspector, and the physician took the place of the policeman.

PREVENTION OF INFANT MORTALITY

A little later there began a movement for the reduction of infant mortality. There was no compulsion about it, and little attention was paid to changing the environment. At first a good deal of attention was given to milk, for it was thought that stale and dirty milk killed many babies. Clean and fresh milk is needed to rear children that are denied the privilege of the breast, but it was soon learned that far more than good milk was necessary to make any appreciable impression on infant mortality. Good food for the baby is necessary, but the average baby is as hard to find as the average man. There is no standard food, but the food must be modified to suit each baby's needs. In this conception of infant feeding I think the Americans and the English were the leaders. To the medical profession chiefly is due the credit for discovering the principles of baby feeding and for constantly teaching and preaching the newer methods. There is, however, much infant care besides feeding. There is cleanliness, protection from infection, clothing, rest, sleep, outdoor life and a thousand and one little details which make up good nursing. It was for this that the nurse was needed. The reduction of infant mortality is chiefly a matter of education. Sometimes it may be necessary to supply good milk or other things; but for the most part the problem has been to educate the physician and

the mother. The leading pediatricians have been doing the former, and countless agencies, public and private, chiefly through their nurses, have been doing the latter.

The distribution of literature, lectures, exhibits and movies have all been employed; and though of much value in exciting public interest and of some value in giving direct instruction to the mother, the latter, to be most effective, must be by physician and nurse.

SUPERVISION OF SCHOOLCHILDREN

Then there is the medical supervision of schoolchildren. I know little about its beginnings in Germany, where I believe it originated, but it was certainly introduced into this country primarily for the prevention of contagious disease. It was hoped that the school physician would discover many children in the early stages of contagious disease and would thus stamp out numerous outbreaks. There has been some control of contagion by this means, but it has not been phenomenal. It soon appeared that medical inspection, as it was first called, had a much broader field. The physician saw many children poorly nourished, with defective eyesight, suffering from adenoids and with numerous other disabilities, some, perhaps, marking the beginnings of serious organic defects. A number of causes, prominent among which is the number of "defects" found in men called to military service in the Boer War and the World War, have served to popularize the demand that the state do something to give strength and health to its men and women. Interest has centered on the child, for it is felt that childhood is the time to remedy defects and to teach right ways of living. The medical supervision of schoolchildren is largely educational work. The physician is the one to discover defects and to remove them; he, also, must be the teacher to show the need for action and the way in which betterment can be secured. Here, as in infant welfare work, the nurse must be his lieutenant. She must go into the home and explain to the parents what the physician has explained to her. In the present state of human knowledge, or rather of human ignorance, hers is often an onerous task. The antivenereal campaign which received such an impetus during the war is not so wholly a campaign of education as those just considered, but it is largely so. The effort is made to educate parents and children in matters of sex, and great effort is made to teach the public generally the nature of venereal diseases and their results and the best methods of treatment. Besides this, the provision of this treatment for each infected person is insisted on. Lastly, the police power is invoked to restrict prostitution and to strengthen moral resistance by prohibiting the sale of alcoholic beverages.

IMPORTANCE OF SANITARY INSTRUCTION

There are several other lines of health work which are just now claiming attention and which are largely educational. This is true of hookworm and malarial campaigns, the effort to prevent pellagra, the dental hygiene campaign, the movement for mental hygiene, cancer control and the salvage from heart disease. Although education is not the only weapon made use of in these newer fields of preventive medicine, and although it has always been relied on more or less, it has become prominent enough during the last twenty years to give color to the whole period. The statement "Sanitary instruction is more important than sanitary legislation" represents the point of view held today, but it certainly does not represent that held fifty years ago.

Education has become a distinct branch of health work. Many state health departments and not a few city departments have a separate division with a director and assistants devoted to education, or publicity, as it is at times and perhaps more properly called. All the modern methods of getting at the people are employed. The circular and bulletin and almanac, the press notice, even the distribution of boiler plate, posters, lectures, lantern slides, moving pictures, newspaper advertisement, bill board advertising, exhibits, the "health automobile" and the "health train" are all made use of. The professional advertiser is employed as director, and the methods of the soap manufacturer and the cigaret maker have invaded the realm of preventive medicine.

TREATMENT

Perhaps the greatest divergence from the real conception of the sphere of public health is in the direction of cure. The early notion was that prevention and cure are two distinct arts and that the health officer and the practitioner must be kept absolutely distinct. This is the idea that prevails today, with few exceptions, among practitioners and to no slight extent among health officers. Gradually, however, a great change, as regards both theory and practice, has been developing until there are many, of whom the writer is one, who are heartily in accord with the views of Sir Arthur Newsholme that "the treatment and prevention of disease cannot administratively be separated without injuring the possibilities of both."

Perhaps the earliest step in this direction was in connection with the use of antitoxin. This new remedy promised great things; but it was expensive and hard to get, and health officials began at once to distribute it, to manufacture it and to administer it. It was considered an important feature of health work to urge the use of this remedy. A few years later the development of the tuberculosis campaign resulted in the establishment of dispensaries for the diagnosis and treatment of the disease, and sanatoriums for the cure of early cases were built as a public health measure and were at times under the control of health officials. Although in baby welfare work a decided effort was made to draw a sharp line between well babies' consultations and sick babies' clinics, the effect on the public mind was to associate the two as equally proper functions of the state. As school inspection began to concern itself with the general welfare of the children rather than with contagious diseases alone, the necessity arose for meeting the need for more and better facilities for treatment. Adenoid and tonsil clinics, dental clinics, trachoma clinics and clinics for the prevention of ringworm, to say nothing of the treatment of lousiness, began to be established. The hookworm campaign centered about the dispensary. It served as a demonstration of the reality of the disease and the possibility of its cure and prevention. By curing people, too, the sources of infection could be removed. Malaria, also, is combated by the administration of quinin to cure and sterilize the patient, and this is now recognized as a legitimate and necessary public health function. There are many other directions in which preventive medicine has invaded the field of curative medicine, but perhaps the most noticeable is the scheme for the control of the venereal diseases. One of the corner stones of this movement is the clinic. No community is considered as doing its duty unless a clinic is provided which is available for every one. Among the reasons for this frank assumption of curative work by the health department

in these diseases is that effective treatment is expensive, that comparatively few physicians are by training qualified to administer it properly, and that treatment quickly eliminates the danger of contagion, in syphilis at least, and minimizes the danger of such impairment of health that the victim will become a burden on the state.

HEALTH CENTERS

Lately, largely through the influence of the Red Cross, there has been a powerful effort made, avowedly and openly, to join curative and preventive medicine in the health center. Better facilities for diagnosis, better opportunities for treatment by specialists, more hospital beds and more good nursing are recognized as powerful factors, not only in the immediate restoration of health to the sick, but also in making them personally acquainted with scientific medicine and instructing them in hygienic methods of living. Some of our health officials are avowedly entering on a campaign to improve the medical facilities of the masses of the population.

The bulk of the medical profession still looks askance at the invasion of the field of curative medicine by the state, and the leaders and molders of public opinion do not take kindly to medicine's becoming more of a governmental function. Nevertheless, it seems unlikely that the movement is going to be checked and it is a tremendous responsibility for those to whom is given the opportunity to direct the movement aright. It is perhaps best that progress should be slow and that we should feel our way. It is perhaps also good that attention at present seems to be directed chiefly to improving the clinic or dispensary and making it available for all of the poorer portion of our population. There is much to be done right there.

MUCH TEACHING OF ERROR

Mistakes have been made in the past and they are likely to be made in the future. Some of these dangers ought now to be seen and guarded against. As has been referred to, education of the people, considered the foundation of the modern health movement, has borrowed much from the professional advertiser. A good deal can be borrowed from this source with advantage, but much commercial advertising is almost criminal. The professional advertiser often forgets that there is such a thing as truth, and the teacher of public health also sometimes forgets it. He aims to be effective first, last and all the time. It is how he says and not what he says that worries him. A few years ago some one started writing ridiculous verses about the fly which seemed to please the peoples' fancy, and there has been a constant output of this "poetry." It usually inculcates the most erroneous ideas about physiology, germs and the cause of disease, as well as greatly overemphasizing a source of sickness which is really comparatively unimportant, at least in the northern part of our country. Much, very much, health instruction is hopelessly behind the times, or else errs as much the other way by teaching as fact the most fanciful theories.

The health bulletins are still harping on the idea that all dirt is dangerous and that disease germs breed in dirt and fly through the air. A wash pail and scrubbing brush are pictured as keeping tuberculosis from the house. Breathed air is represented as loaded with poison. The age is in too much of a hurry. Disease is killing people. Let us do something about it, no matter what so long as we do it, is the attitude of many. Arterial disease kills thousands and handicaps more. Let us start a campaign against it, whether we know its cause or not. Some say it is caused by too little exercise, some say by too much; but never mind, let's start a campaign anyway. The greatest danger of the educational movement in public health is that it will be wrecked on the shoals of error.

I am told that a common admonition of Osler, when at the bedside with his patients, was: "Have the courage to do nothing." I would paraphrase this and say to the writers of press articles and to the compilers of health almanacs: When facts are not at hand, have the courage to say nothing.

COMPULSORY TREATMENT

In an address which Viscount Bryce gave in Providence many years ago, while speaking of the influence of Roger Williams, Rhode Island's apostle of soul liberty, he called attention to the jealousy with which most men regard body liberty. What Viscount Bryce's views are in regard to the effects of vaccination or the curative value of arsphenamin I do not know, but I am sure he was right when he urged the danger of trespassing on individual liberty in such matters. Let us beware of the compulsory treatment of disease. That is another rock on which the future of preventive medicine may be wrecked. Education is better than legislation. It is slower, but surer.

SYNERGISTIC COLONIC ANALGESIA

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In 1913, I [1] presented the results of the experiments by Prof. George Barclay Wallace and myself with the colonic administration of oil and ether in animals for the purpose of inducing anesthesia. Seven years later, Lathrop [2] detailed the results of more than 1,000 cases of oil-ether colonic anesthesia in his individual parctice. Oil-ether anesthesia is now used throughout the world. Whenever the fundamental principles are understood and applied, only satisfactory results follow.

PHYSICAL FUNDAMENTALS

As determined by Baskerville,[3] the physical fundamentals are:

> While ether boils at 34.6 C., it does not escape as violently from an oil-ether mixture as from an aqueous mixture, when the mixture is heated higher, namely, to the body temperature of 37 C. The rate of separation from the oil quickly acquires a definite and fairly fixed speed.
>
> The significance of this cannot fail to be of great import, for by this means the proper content of ether may be maintained in the blood to produce any desired physiological effect that has a quantitative relation thereto—for example, the third or surgical stage of anesthesia.

PHYSIOLOGIC FUNDAMENTALS [4]

1. It is necessary to give at one time the total amount, as determined by age, weight and the general condition of the patient, in order to establish the ether tension in the blood, which is necessary to produce anesthesia. It is a fallacy to assume that the total amount given to a patient is immediately utilized. If this were so, there

1. Gwathmey, J. T., and Wallace, G. B.: Seventeenth Internat. Cong. Med., London, 1913, subsection vii (b), p. 163.
2. Lathrop, Walter: Ether-Oil Colonic Anesthesia, J. A. M. A. 75:82 (July 10) 1920.
3. Baskerville: J. Indust. & Engin. Chem. 7:868 (Oct.) 1915.
4. Gwathmey, J. T., and Baskerville, Charles: Anesthesia, New York, D. Appleton & Co., 1914, p. 458.

would be shock and gradual recovery with every oil-ether administration. As the plane of anesthesia is constant, it is now definitely established that the patient absorbs 2 ounces of ether an hour—a smaller amount than by any other method in common use.

2. After administering the oil-ether mixture, it is impossible to withdraw the oil and leave the ether, or to withdraw the ether and leave the oil. Every molecule of ether is bound to a molecule of oil, and this union is broken only when vaporization occurs. In no other way can they be separated.

When anesthesia is established, it is automatically maintained by the ether separating from the oil according to certain inflexible physical laws. The amount of this vaporization never varies. Therefore it is impossible to have deep anesthesia at one time and a light anesthesia at another, unless the anesthesia is deepened by rebreathing or lightened by an airway tube. Thus the administration is as definitely under the control of the anesthetist at all times as if he were giving it by an inhalation method. While the total amount of the mixture is within the body, the patient is as safe from an overdose as if it were in a container outside the body.

The patient under oil-ether colonic anesthesia inhales a warm, moist vapor at all times. When the ether is taken up by the small blood vessels surrounding the colon, it is carried thence through the liver by the greater circulation and on to the heart; from there it is pumped into the lungs. By the time the anesthetic has reached the lungs, it is moistened and thoroughly warmed to the body temperature. There is no irritation to the lungs, and mucus and saliva are usually absent.

4. When the ether evaporates from the oil in the colon, a frigid condition ensues, which cools the mixture and retards evaporation. This process recurs automatically until all the ether has parted from the oil. During this time the temperature of the patient remains normal, as determined by a thermometer placed in the axilla. The skin is warm to the touch; the color of the face suggests thorough oxidation all the time. The cold, clammy sweat often noticed with ether given by other methods does not exist with oil-ether.

5. Quiet respiration, normal pulse, and good color during the anesthesia indicate that no toxic condition exists.

The absence of nausea and vomiting in the large majority of cases, with no change in the urine or blood, in conjunction with the other clinical facts just noted, would indicate that there is less toxicity in connection with this form of anesthesia than with the usual inhalation methods.

Dr. G. K. Dickinson [5] of Jersey City thus sums up the argument for oil-ether anesthesia:

> To any one who has witnessed anesthesia by the inhalation method, and then watches the most delightful, childlike slumber of the person under rectal anesthesia, there will be a great and comforting surprise. The cone to the face, even with gas-oxygen, is an affront. Those who prefer local anesthesia also give affront by their presence and manipulation; but the surgeon who quietly steals up behind and induces anesthesia per anum does not in any way disturb the psyche, and the chain of reactions so detrimental are not instituted.

One great objection to the practical application of this method is the fact that so few anesthetists or surgeons understand the difference between the signs of analgesia and anesthesia.

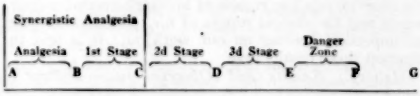
5. Dickinson, G. K.: Personal communication to the author, November, 1920.

PRINCIPLE OF SYNERGISM

We propose now to introduce another element into colonic anesthesia, which will render expert supervision unnecessary. This element or fundamental principle is now being tested clinically at the Presbyterian Hospital under the supervision of Dr. Adrian V. S. Lambert. It is termed synergistic analgesia. By synergism is meant the reciprocal augmentation of the action of one drug by that of another. This effect is not due to a simple summation of similar pharmacologic actions, for they are altogether too great. Dr. Hans Meyer states that "at present no satisfactory explanation for this action can be given." [6]

The late Dr. Samuel J. Meltzer [7] thus expressed the synergistic property of magnesium sulphate: "When after the administration of a very small amount of ether, insufficient to cause anesthesia, an inefficient amount of magnesium sulphate is injected intramuscularly, a profound anesthesia follows, which can be maintained for several hours." To Meltzer is due the honor of introducing magnesium sulphate as an anesthetic agent. The mistake that he made was in attempting by various ways to use this agent as the single factor in producing the effects desired. A search of the literature does not give a single reference to the use of magnesium sulphate with morphin for analgesic purposes.[8] Meltzer, in writing up clinical cases, says: "No morphin was used."

At the Presbyterian Hospital it has been definitely determined that the addition of a small amount of magnesium sulphate to the usual hypodermic of morphin increases the value of the hypodermic from 50 to 100 per cent. We propose to take advantage of the knowledge thus gained and convert colonic anesthesia into synergistic colonic analgesia. In other words, we propose to get a complete brain block by using much smaller amounts of ether than heretofore employed and adding to this effect of ether the synergistic effects of the combined morphin and magnesium sulphate. It will depend entirely on the operation and the patient's mental attitude as to whether or not unconsciousness also shall be induced. A patient under synergistic colonic anesthesia will not be in a third stage anesthesia, but will be analgized and unconscious as represented in the accompanying chart.



Stages of anesthesia: *A*, commencement of anesthesia; *A B*, analgesia; *B C*, first, or excitement, stage; *C D*, second stage; *D E*, third, or surgical, stage—the usual stage in which operations are performed with inhalation anesthesia; *E F*, danger zone; *F*, respiratory arrest; *G*, death.

The danger of the relaxed tongue, obstructing the airway, will be eliminated, and as the patient will be separated from the danger zone by the second and third stages of anesthesia, expert supervision will be unnecessary.

MAGNESIUM SULPHATE

Since the use of magnesium sulphate is new in this connection, a brief review of its history and physical characters may be timely.

6. Meyer, H. H., and Gottlieb, R.: Pharmacology, Clinical and Experimental, Philadelphia, J. B. Lippincott Company, 1914, pp. 510, 575.
7. Meltzer, S. J.: J. Exper. Med. 22:641 (May) 1916.
8. Dreyfus and Unger: München. med. Wchnschr., 1914, No. 51, p. 2417.

History. — Magnesium sulphate, $MgSO_4$ (Epsom salt), was first discovered by Dr. Nehemiah Grew, an English physician, in 1694, and is undoubtedly one of the most widely known and most extensively used medicinal chemicals, being official in every known pharmacopeia. It was first obtained by evaporating the water of a spring at Epsom, in Surrey, England; hence the popular name, Epsom salt.[9] Later, in Massachusetts, it was obtained as a by-product in the manufacture of salt from sea water. Still later, it was manufactured from native magnesite found near Baltimore. It is now obtained also by the interaction of the native magnesium carbonates and diluted sulphuric acid. It occurs native in certain rocks and soils which contain magnesia and a sulphate or sulphid. In the United States, it is found in caves west of the Alleghany Mountains, and it is also obtained from kieserite from the Stassfurt mines in Germany. It occurs in small, colorless, prismatic needles or rhombic prisms, is without odor, and has a cooling, saline and bitter taste. Comparatively it is very cheap, and it is available in three qualities — commercial, purified and chemically pure. The only quality permissible in anesthesia or analgesia is the "chemically pure." It is also well to remember that the salts of magnesium, along with the salts of sodium, potassium and calcium, are the chief inorganic compounds present in the tissues and the fluids of animal bodies.[10] For more than 200 years, Epsom salt has been largely used to relieve constipation. The late Dr. Meltzer [11] of the Rockefeller Institute, while experimenting for other purposes, noticed that two drops of a 5 per cent. solution of magnesium sulphate, injected intracerebrally in a rabbit, produced completed anesthesia and relaxation lasting several hours. From that time, Dr. Meltzer labored to establish its value as an anesthetic. Before subjecting any human being to its, at that time, unknown qualities, he conscientiously experimented for many years on different species of the lower animals, using rats, guinea-pigs, fowls, cats, dogs and monkeys. The agent was used intravenously, subcutaneously, intramuscularly, intraspinally and as a local anesthetic.

While we have not employed it in any of these ways, and do not intend to do so, and while we do not intend using it as an anesthetic or analgesic, but simply and solely for its synergistic effect with other agents, yet the observations and results of Meltzer's animal experiments and the clinical results of his collaborators have an important bearing on our work, and it is best to mention these results here.

Meltzer's Results and Observations. — Meltzer [10] wrote:

> Magnesium exerts a profound effect upon the nervous system. The hypodermic injection is painless; the effect seems to be exclusively of an inhibitory character. Complete anesthesia, including relaxation of all voluntary muscles with subsequent full recovery in animals, may be obtained by employing magnesium sulphate in 25 per cent. solution subcutaneously. The *subcutaneous injection* of magnesium sulphate never led to an immediate or late appearance of diarrhea or more frequent stools. The salts are eliminated to a great extent through the kidneys.
>
> Absence of pain sensation and complete muscular relaxation can be fully developed before the stage of complete abolition of the conjunctival reflex is reached. Not a single instance was observed in which magnesium sulphate produced an increase of excitation.

In *intravenous injections*[12] it is very toxic, even in small doses. The first effect is upon the respiration.

Among the effects of these salts,[13] not a single phenomenon was noticed which could be reasonably interpreted as an irritating influence.

The direct application of solutions of magnesium salts, even in strong concentration, to the nerve trunks of animals, never seems to produce irritation. The conductivity can be interrupted and a more or less complete block for afferent and efferent, for normal or artificial impulses, can be established. This can be accomplished by hypertonic, isotonic and hypotonic solutions. The more concentrated the solution, the sooner the effect is established. In general, it takes more time for the magnesium solution to cause a nerve block than for other known local or general anesthetics. Intravenous infusions of various calcium salts [14] are capable of completely reversing the pronounced inhibitory effects brought on by various magnesium salts. The respiratory paralysis, etc., are all completely reversed and restored in a very short time by the injection of a comparatively small quantity of calcium salt. The antagonism of calcium to magnesium is a phenomenon common to animals and plants. Chloride, nitrate, and acetate salts of calcium were used. Calcium salts were M/8.

The dangers of anesthesia by magnesium sulphate come practically only from respiration.[15] Heart and pulse remain normal.

The effect upon the central nervous system appears to set in sooner than the peripheral.[15] This effect, and especially the effect on pain and on consciousness, can be attained with a smaller dose of magnesium salts than that which is required for a paralysis of the motor nerve ending.

Death is due in all cases to inhibition of the respiratory center.[16]

With dosage and safeguards alike determined by the animal experiments, magnesium sulphate was now used clinically. As an anesthetic in man, it was a disappointment—as also in chorea, in which, theoretically, it was indicated. It has proved most valuable in tetanus, and will probably continue to be used with this condition.

Laboratory and Clinical Observations of Meltzer, Auer and Others.—Dr. Joseph A. Blake, after trying it in a case of tetanus,[16] found:

> 1. A marked effect in restraining the convulsions and relieving pain, thereby conserving strength and preventing excessive metabolism and heat production. 2. Spasm of muscles of mastication and deglutition is at least lessened, thereby permitting feeding. 3. Its action is continued for a considerable period, without depressing action upon the heart muscle. Repeated injections produced no harmful effect, except the inhibition of the bladder, thus requiring catheterization.

Another observer states that:

> The severe spasms or convulsions [referring to tetany in children] may be temporarily relieved by subcutaneous injections of a solution of magnesium sulphate.

A personal communication to the author states that:

> An 8 per cent. solution of chemically pure and sterilized magnesium sulphate is used in young infants under 1 year of age. From 25 to 30 c.c. is injected subcutaneously. Occasionally this is repeated once or twice in twenty-four hours, but usually one injection is sufficient to control.

Another writer warns that:

> On account of the slowness of its excretion from the system, magnesium sulphate given repeatedly in a concentrated solution may produce poisoning by accumulation.

9. Proc. Am. Pharm. Assn., 1904, p. 351.
10. Meltzer, S. J.: Am. J. Physiol. **14**: 366, 1905.
11. Peck, C. H., and Meltzer, S. J.: Anesthesia in Human Beings by Intravenous Injection of Magnesium Sulphate, J. A. M. A. **67**: 1131 (Oct. 14) 1916.
12. Meltzer, S. J.: Am. J. Physiol. **15**: 387, 1905.
13. Meltzer, S. J.: Am. J. Physiol. **16**: 233, 1906.
14. Meltzer, S. J.: Am. J. Physiol. **21**: 300, 1908.
15. Meltzer, S. J.: Med. Rec. **68**: 965, 1905.
16. Meltzer, S. J.: Surg., Gynec. & Obst., May, 1906.

While the intraspinal injection of magnesium sulphate has been discarded, the dosage with this method is important in connection with its use subcutaneously. "Inject 1 c.c. of a 25 per cent. solution for every 18 to 20 pounds of body weight, and wait about two hours." [17] Thus, a man weighing 160 pounds would receive 8 c.c.

MAGNESIUM SULPHATE AND MORPHIN

From the foregoing data, it may be concluded that magnesium sulphate is a safe agent in producing anesthesia, although not as valuable as some other agents when used alone. When used synergistically, it is absolutely harmless and one of the most effective agents of which we know. Its combination with morphin was first suggested by Dr. E. J. Pellini of the pharmacologic department of the University and Bellevue Hospital Medical College, and in association with the writer the effect of this combination was determined, as follows:

A sufficient number of animal experiments was conducted to prove that one-eighth grain of morphin in 2 c.c. of a 25 per cent. solution of chemically pure and sterilized magnesium sulphate, given hypodermically and repeated twice at half-hour intervals, analgized an animal sufficiently for the full force of an artery clamp to be placed anywhere on the skin without being noticed by the subject. The controlled animal, with the same dosage of morphin, given in plain water hypodermically, was not analgized to anything like this degree.

The clinical results at the Presbyterian Hospital, the same technic being used, showed that: 1. General analgesia could not be obtained by morphin and magnesium sulphate alone. 2. With three hypodermic injections, each of 1/8 grain of morphin and 2 c.c. of magnesium sulphate, supplemented by nitrous oxid and oxygen, the oxygen in a much higher percentage than usual, an analgesic state with unconsciousness and complete relaxation is secured, entirely eliminating the use of ether. 3. Morphin, whenever indicated, may be given in a 25 per cent. sterilized solution of chemically pure magnesium sulphate. This procedure increases the value of morphin from 50 to 100 per cent.

To illustrate: One-eighth grain of morphin in 2 c.c. of magnesium sulphate solution by hypodermic injection will abolish pain for two, three and four times as long as morphin given alone. The value of these observations in determining synergistic colonic anesthesia is apparent. One-eighth grain of morphin by hypodermic injection in 2 c.c. of magnesium sulphate solution, given two hours before operation and twice repeated at half hour intervals, is sufficient to reduce the amount of ether heretofore used in oil-ether colonic anesthesia by about one half. With this hypodermic dosage, perfect analgesia with unconsciousness has been obtained by the addition colonically of 3 ounces of ether and 2 drams of paraldehyd in oil. This amount is amply sufficient for a two-hour operation. With greater experience and improved technic, the amount of ether required can doubtless be reduced as low as 1 ounce an hour.

SUMMARY AND CONCLUSIONS

Two definite facts are established:

1. When magnesium sulphate (from 1 to 2 c.c.) is used with morphin (from 1/12 to 3/8 grain) instead of plain water, and given by hypodermic injection, the value of the morphin is increased from 50 to 100 per cent. That is, one hypodermic injection will do the work of from two to four.

This knowledge is immediately available for physicians and surgeons who use morphin for any purpose. It will prove of inestimable value in the transportation of the sick from place to place, especially in the transportation of the wounded from the battle field. The possibility of morphinism should be materially reduced.

2. Magnesium sulphate (from 6 to 15 c.c.) given by hypodermic injection two hours before an operation, followed by morphin sulphate hypodermically (from 1/12 to 3/8 grain) one hour before the operation, when supplemented by nitrous oxid and oxygen (the oxygen being employed in a much higher percentage than usual) gives a safer and better relaxation than when ether is used.

Furthermore, synergistic analgesia is the logical evolution of general anesthesia. Analgesia with consciousness is present oftener with colonic anesthesia than with other methods of administering any of the general anesthetics. This fact has been noted and commented on by every surgeon and anesthetist who has used the method sufficiently to be familiar with the technic. Obviously, colonic anesthesia was the first to be improved; and now an attempt is being made to improve anesthesia for general surgery by synergistic methods.

40 East Forty-First Street.

17. Haubold, H. A., and Meltzer, S. J.: Spinal Anesthesia by Magnesium Sulphate, J. A. M. A. 46:647 (March 3) 1906.

DETERMINATION OF CURE IN GONORRHEAL INFECTION OF THE MALE

DESCRIPTION OF IMPROVED METHODS *

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An attempt has been made to establish a better and more definite standard of cure in gonorrheal infections of the male by improved methods for the cultivation of the gonococcus, by the study of the value of provocative tests, by correlation of the results of fixation and other serologic tests, and by other observations.

CULTIVATION OF GONOCOCCUS

The difficulty of cultivation of the gonococcus has prevented the general use of the culture test in the efforts to demonstrate whether or not a gonococcus infection has been cured.

Some of the considerations that must be taken into account in the effort to secure positive cultures in latent gonorrheal infection are: (1) the conditions most favorable for the growth of the gonococcus; (2) suitable medium; (3) the collection of the suspected material, and (4) methods of identification of gram-negative diplococci.

As previously reported,[1] the advantage of reduced oxygen tension in growing the gonococcus claimed by Wherry and Oliver [2] has been confirmed, and a simplified plate method devised which is practical for the isolation of the gonococcus. Two inoculated plates, one with the gonorrheal material, and the other with *B. subtilis*, are placed together with the open sides

* From the John McCormick Institute for Infectious Diseases.
* This work was carried out under a grant from the U. S. Interdepartmental Social Hygiene Board, Washington, D. C.

1. Herrold, R. D.: A Simplified Plate Method of Partial Oxygen Tension in the Cultivation of the Gonococcus, J. A. M. A. 74:1716 (June 19) 1920.
2. Wherry, W. B., and Oliver, W. W.: J. Infect. Dis. 19:288 (Sept.) 1916.

facing each other. Then a closed rubber band 2½ inches wide by 3½ inches in diameter encircles both, enclosing the edges but allowing aerial communication between them. Satisfactory bands may be obtained by cutting wide rubber tubing into pieces of the required width. There is no appreciable difference in growth at temperatures between 35 and 37.6 C., and there is sufficient moisture when the enclosed plates are used; but with aerobic methods it is advisable to keep a vessel of water in the incubator to increase the humidity. The plates should be poured on the day of use and warmed for half an hour in the incubator before inoculation.

The medium of choice is ascites-blood-agar in which dibasic sodium phosphate is substituted for the sodium chlorid in the ordinary nutrient agar. Martin[3] first used phosphate, but it has not been generally accepted, as evidenced by the multiplicity of mediums since advocated. The importance of the phosphate may be demonstrated clearly by comparison of the growth on phosphate agar with that on sodium chlorid agar, equal quantities of ascites fluid and blood being added in each case, and parallel plates made. A loopful of plain broth suspension of pus from an acute gonorrheal urethritis may be streaked over the surface of each plate. On the sodium chlorid plates the colonies will be from 0.5 to 1 mm. in diameter. The colonies will be more numerous on the phosphate plates, and 2 to 4 mm. in diameter. Growth is equally good with a reaction varying between p_H 7 and p_H 7.8. In a series of chronic cases, positive cultures have been obtained on this medium under reduced tension when typical intracellular gram-negative diplococci could not be found in the smears after careful search for ten or fifteen minutes. In several instances, however, parallel aerobic plates have given positive cultures; but, as a rule, there were fewer colonies. This occurred with sufficient frequency to warrant the use of aerobic plates when partial tension methods are not available.

Great care must be used in the collection of all material. The patient is instructed to come for examination with a full bladder, preferably in the morning before urination. The glans is cleansed with antiseptic solution, such as potassium mercuric iodid, 1:5,000, and the anterior end of the urethra swabbed with the same solution followed by sterile water. The first urine is voided into a sterile container and immediately centrifuged, the supernatant fluid poured off, and the sediment streaked on previously prepared plates. This is followed by massage of the prostate and stripping the seminal vesicles. Usually from 1 to 5 c.c. of prostatic and seminal fluid may be collected into a tube at the meatus. The tube should be shaken thoroughly, and several loopfuls streaked on three or four plates. If very little secretion is expressed, a few cubic centimeters of urine may be voided into a tube, centrifuged and cultivated as in the case of the first specimen. The plates should be incubated as soon as possible after inoculation, and in cool weather they should be kept warm in transit to the laboratory. Smears of the sediment are stained and examined for gonococci, other bacteria, pus cells and spermatozoa. The presence of the latter indicates that seminal fluid has been expressed. The first examination of the cultures is made after twenty-four hours' incubation, when smears of suspicious colonies are examined, subcultures are made of colonies of gram-negative diplococci on ascites phosphate agar or Loeffler slants, and suspensions in plain broth of the sixteen to twenty-four hour growths are tested for agglutination with a polyvalent antigonococcus serum. If clumping occurs in dilutions of 1:100, the controls being unclumped, the organism in question is identified as a gonococcus. The results are read after three hours' incubation at from 54 to 56 C. If the culture looks like that of a gonococcus but does not agglutinate, the fermentation of dextrose and maltose is tested.

3. Martin: J. Path. & Bacteriol. 16:76, 1911.

PROVOCATIVE REACTIONS IN GONORRHEA

The injection of an irritating substance to produce a local inflammatory reaction of the urethra has long been used as a means of bringing to the surface gonococci within the deeper structures in latent infections.

Silver nitrate, from 1 to 2 per cent., which is the most commonly used substance for this purpose, has been tried in a series of cases studied also by cultural and serologic methods. It was found that when the cultures were negative, no matter whether the fixation tests gave negative or positive results, positive smears were not obtained after multiple provocative injections extending over an average period of observation of four months. A series of patients with positive cultures and positive fixation were observed in the same way. There were two instances in which acute discharge with positive smears resulted from the provocative injection. In eight cases with positive cultures, repeated intra-urethral injections soon after the cultures were obtained did not produce positive smears. One patient with positive culture and negative provocative test four weeks later, without exposure, developed an acute exacerbation. Four other patients with positive cultures had a recurrence of acute urethritis following the passage of a sound. Obviously local reactions are of limited value and inferior to careful cultural methods. Infection latent in the prostate and vesicles suffers little direct disturbance from local urethral irritation.

Subcutaneous injection of gonococcal vaccines in order to call forth a secondary focal reaction has been advocated by Pearson.[4] I made subcutaneous injections of gonococcus vaccine in eighteen instances, prostatic and urinary cultures being made twenty-four hours later. In ten with previous negative cultures, the results were negative; in seven with previous positive cultures there was no special increase in the number of colonies after the injection. In a previously positive case, but with only few colonies, the cultures became negative after the injection, the gonococci probably being on the verge of disappearing at that time. Hence vaccine injections would seem to have no apparent advantage over the methods of culture but to interfere somewhat with the proper interpretation of the serologic tests.

CORRELATION OF SEROLOGIC TESTS

The correlation of the results of the complement fixation and precipitin tests was made in a selected series of cases in the chronic stage of gonorrhea. Gram-negative diplococci could be demonstrated in a small percentage after careful search. In order to interpret the serologic results more accurately, smears, cultures and provocative tests were made and observations controlled for two to ten months after the initial examination. In a large percentage, two or more complete laboratory tests were made. The practical value of the complement fixation test has been increased by the use of an easily prepared and sensitive antigen.

4. Pearson, G. H.: J. Urol. 2:455 (Dec.) 1918.

Profuse twenty-four hour growths of several Torrey strains of gonococci are obtained on phosphate agar; suspensions are made in physiologic sodium chlorid solution, 0.25 c.c. being used for each slant; and after undergoing autolysis in the icebox for from five to seven days, with occasional agitation, the suspensions are centrifuged at high speed. The clear, supernatant fluid constitutes the antigen. To each cubic centimeter is added 0.05 cubic centimeter of 5 per cent. solution of phenol in salt solution.

Schwartz and McNeal [5] used salt solution in the preparation of antigen, but heated the suspension at 56 C. for thirty minutes and then placed it in a shaker apparatus for twenty-four hours.

Titration of the undiluted antigen is made with a known positive serum. The antisheep system has been used as a rule. The smallest amount found to produce complete inhibition of hemolysis is taken as a unit for the test. With the dilution of salt solution described, frequently the titrated unit has been between 0.03 and 0.06 c.c. The hemolytic and anticomplementary properties are also titrated. If not anticomplementary in less than three times the antigenic unit, an antigen is considered satisfactory, and such antigen does not become anticomplementary if kept in the icebox for two or three months; one lot now six months old has not been deteriorated. Positive and negative serum controls and also an antigenic control are carried with each test. The serum of patients with gonorrheal epididymitis of from one to four weeks' duration has been found as a rule to be + + + and + + + + positive; patients with acute and subacute arthritis and prostatitis also furnish positive control serum. The mixture of serum, antigen and complement is incubated for thirty minutes in the water bath at 38 C.; the sheep corpuscles are added and after fifteen minutes' incubation, if no hemolysis results, the antisheep amboceptor is added and the mixture incubated one hour longer and results read.

Tests have been made for gonococcal precipitin in the serum of gonococcal patients, the antigen being prepared in a similar manner as for complement fixation, but of greater concentration, approximately eight to ten slants for each cubic centimeter of salt solution. This may be diluted if desired in doubtful reactions. The contact or layer method is used and the results determined after one hour at room temperature. This appears more satisfactory than the mixing of antigen and serum, taking readings at twenty-four hours, as reported by Watabiki.[6] In positive reactions a precipitate forms at the zone of contact. The accompanying table shows that 86 per cent. of the cases giving a three to four plus complement-fixation also give a specific precepitin reaction. The great simplicity of the precipitin test would seem to make it of some value, especially when complement fixation tests cannot be made.

The table summarizes the observations on which this paper is based. The fallacy of taking the pus cell content of prostatic and seminal fluid as an index of cure is clearly shown. Of thirty cases with negative cultures and negative fixation test, in nineteen there were pus cells in the smears, and in approximately half of them pus cells persisted after four months more of treatment. A similar condition is shown in the second series with negative culture and positive fixation tests. The amount of pus cells usually decreased in the smears during treatment. There was no clinical exacerbation of gonorrhea in the fifty-six cases of the two series while under observation. Another important result is that positive fixation persists longer than is usually stated. In the positive fixation and negative culture series the average time since infection was eleven months. The reaction, however, is generally one of low degree, such as is usually indicated by a plus minus, one plus and two plus signs.

The macroscopic urinary findings probably are given too much importance in the standards of cure. Many specimens of urine with shreds or haziness proved sterile as to gonococci, being the result of postgonorrheal infiltrations and other pathologic changes along the urinary tract. On the contrary, several patients with clear urine gave positive prostatic cultures.

SUMMARY OF RESULTS

		Complement Fixation				Precipitin Test			Duration of Infection				Urethral Lesions; Infiltrations;	Pus Cells in Prostate and Seminal Fluid — Present			Urine			Average Duration in Months of Observations Since Initial Exam.	Pus Pertinent in Prostatic and Seminal Fluid at Last Examination
Cases	Cultural Results	0	+ or ±	++	+++ or ++++	Positive	Negative	Not Made	Gonococci in Smears	2 to 6 Mos.	6 to 12 Mos	Over 12 Mos.	Average in Mos.	Follicultis	None	With Definite Lesions	Without Definite Lesions	Clear	Shreds	Hazy		
30	0	30	0	0	0	0	28	2	0	4	17	19	16	16	11	13	6	13	12	5	4	9
26	0	0	19	5	2	4	17	5	0	7	8	11	11	11	9	11	6	14	9	3	3½	12
44	+	0	6	16	22	33	8	3	14	33	10	1	4	22	4	35	5	13	19	22	3¾	30

CONCLUSIONS

Cultures of prostatic and seminal fluids and first urine sediment, carefully collected, are the most reliable single means of determining whether or not a gonorrhea is cured. For this purpose, phosphate agar with blood and ascites fluid is suitable, and the inoculated plates should be incubated under reduced oxygen tension.

The complement fixation test is a valuable aid, but the results should be taken in conjunction with the cultural results. Low degree positive fixation may persist up to a year after positive smears and cultures can be obtained. However, with positive serologic reaction, cultures should be repeated at intervals and the patient kept under observation until the serologic tests give negative results.

The gonococcus may be identified by agglutination tests with polyvalent antigonococcus serum.

A satisfactory antigen can be easily prepared as described.

The precipitin test appears less sensitive; but because of its greater simplicity, it may be used as a substitute for complement fixation under special circumstances.

The use of provocative tests before taking cultures and smears is of no advantage.

The pus cell content of smears and macroscopic urinary appearances may be misleading, and by themselves constitute no safe index of cure.

5. Schwartz and McNeal: Am. J. M. Sc. 141:693, 1911.
6. Watabiki, T.: J. Infect. Dis. 22:115 (Feb.) 1918.

INDUCED ATROPHY OF HYPERTROPHIED TONSILS BY ROENTGEN RAY *

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Early in the study of the biologic effects of the roentgen ray it was noted that the lymphoid tissue was easily affected by this agent.[1] After long exposures of animals, both the lymphoid tissue and the circulating lymphocytes were found to be almost completely destroyed. This observation led to the use of the roentgen ray as a therapeutic agent in the treatment of lymphatic leukemia and in reducing enlarged spleens and glands occurring in other diseases. In this laboratory it was shown experimentally that the susceptibility of the lymphoid tissue was so much greater than the susceptibility of other tissues that by the judicious use of this agent the major portion of the lymphoid tissue of the body could be destroyed without appreciable damage to other tissues.[2]

The recent emphasis laid on the tonsil as a seat of focal infections has suggested that these lymphoid organs might be reduced by the roentgen ray and their shrinkage be accompanied by proper drainage of the crypts with resultant clearing up of the infections.

TECHNIC OF TREATMENT

The factors governing the dose of roentgen ray given to the region of each tonsil were as follows: The spark-gap, measured between points, was 8 inches; 5 milliamperes; 10 inches distance from the target to the highest point of skin exposed. The time of exposure varied from three to seven minutes, according to the age of the patient. The ray was filtered through 3 mm. of aluminum. The approximate value of this dose was from 1 to 1¾ skin units. The patient to be treated was placed on a table in such a position that the ray entered under the angle of the jaw and penetrated through the soft tissues to the region of the tonsil. The area exposed on each side was about 3 square inches, the surrounding parts being protected by heavy sheet-lead. For young children a special board was used with retaining straps, and the head secured by means of a gauze bandage.

RESULTS

Material.—This report is based on the result of the foregoing treatment on forty-six patients ranging from 3½ to 45 years of age, all showing more or less hypertrophy and disease of the tonsils and surrounding tissues. No patients were treated during a time when the throat showed evidence of acute infection. The state of the tonsils varied from those with deep crypts, ragged surface, purulent, mucopurulent or cheesy exudates, to a condition of marked hypertrophy with other pathologic states less marked.

Tonsils.—In all but four cases the treatment was followed by marked improvement. In the majority of cases, two weeks after the exposure to the roentgen ray a distinct shrinkage of the tonsil was noted, this process continuing from one to two months. During this period of atrophy the crypts opened and drained, and, in all but a few cases, the exudate disappeared from the throat, and the surface of the tonsils became smooth, pale and of a healthy appearance. With the exception of four cases, no exudate could be squeezed from the deep tonsillar tissue at the end of the period of observation. Later examination of the throat showed the edges of the crypts to be inverted, and in a number of cases white bands resembling scar tisssue were noted on the surface.

Other Local Deposits of Lymphoid Tissue.—Another point of as great interest as the shrinkage of the tonsils was the disappearance of the other lymphoid deposits in the throat commonly seen in the form of small nodules on the pillars of the fauces and in masses posterior to the pillars. These deposits are well known as troublesome factors even after extensive surgical removal of the true tonsillar tissue.

Adenoids.—A proportion of the patients treated had, in addition to the tonsil condition, large masses of adenoids. In order to reduce these a dose of roentgen ray similar to that used on the tonsils was given through the back of the neck. The results were not as satisfactory as those following the treatment of tonsils, although decided shrinkage was noted in a number of cases. The lack of uniform results here was doubtless due to the fact that the amount of roentgen ray actually delivered to the tissue after filtration through the bony structures of the head was very small. It is probable that with a more suitable portal of entry for the rays the adenoids can be influenced to a greater degree.

Bacteriology.—Cultures were made from the crypts of the tonsils and from the nasopharyngeal vault on forty of the forty-six patients before treatment and at intervals afterward. It is of interest to note that the common organisms found in the throat were unaffected by the treatment, while of the thirty-six cases showing the hemolytic streptococcus and the hemolytic staphylococcus to be present, thirty became free from these organisms by the fourth week after treatment.

COMMENT

The results reported here suggest the possibility of utilizing the well-known fact that lymphoid tissue is easily destroyed by the roentgen ray for clearing the throat of an excess of this tissue. In the series reported above, only one patient received more than one treatment.

To judge by our studies on animals, it should be possible to induce almost any degree of atrophy by repeating the roentgen-ray treatments at suitable intervals. It is possible that the hypertrophied condition may return after a lapse of time; but with the mildness of the roentgen-ray treatment recommended, there is no reason why it should not be repeated as often as desired, with the proper interval between exposures. The actual amount of roentgen ray used is smaller than that commonly used in the treatment of ringworm of the scalp, from which no bad results have been recorded.

We attribute the disappearance of the hemolytic organisms of the throat, not to the direct action of the roentgen ray on these organisms, but rather to the proper drainage of the crypts as the tonsil tissue atrophies.

How practicable this treatment will prove can be determined only by the study of a large series of cases followed over a considerable interval of time.

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Heineke, H.: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **14**: 21, 1905.
2. Murphy, J. B.: Heteroplastic Tissue Grafting Effected Through Roentgen-Ray Lymphoid Destruction, J. A. M. A. **62**: 1459 (May 9) 1914. Murphy, J. B., and Ellis, A. W. M.: J. Exper. Med. **20**: 397, 1914. Taylor, H. D.; Witherbee, W. D., and Murphy, J. B.: J. Exper. Med. **29**: 53 (Jan.) 1919.

POLYPOID CARCINOMA OF THE STOMACH

REPORT OF A CASE DIAGNOSED AS PRIMARY PERNICIOUS ANEMIA EIGHTEEN MONTHS BEFORE DEATH *

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If an apology is necessary for this report of a single case of carcinoma of the stomach it is to be found in the unusual clinical picture which existed eighteen months before the patient's death and which, after careful study by competent clinicians, led them to make a diagnosis of primary pernicious anemia. The case is also noteworthy on account of the evidence which it presents in favor of ulceration with hemorrhage in benign gastric tumors and for the secondary development of malignancy in such neoplasms.

CLINICAL RECORD

History.—F. A. D., an American white man, aged 31, single, an optometrist, admitted to the Medical Division of the University Hospital, Nov. 12, 1919, with a chief complaint of pain in the upper abdomen, had been admitted as a soldier to the U. S. Army Base Hospital at Camp Meade, Md., in the service of Dr. Nellis B. Foster, in the latter part of May, 1918, on account of weakness and sleepiness which had developed in the course of two or three weeks. At that time his red blood cells numbered 1,000,000 and his hemoglobin was 40 per cent. A diagnosis of pernicious anemia was made and he was given five blood transfusions of about 300 c.c. each. Aug. 26, 1918, his red blood cells had increased to 2,105,000 and the hemoglobin to 78 per cent. Soon afterward he was discharged from the hospital and from the army, his condition progressively improving. Subsequent blood counts, made by private physicians, were: Sept. 30, 1918, red cells, 4,105,000; white cells, 5,100, and hemoglobin, 78 per cent.; Jan. 9, 1919, red cells, 5,630,000; white cells, 6,500, and hemoglobin, 90 per cent. From the latter date he continued comparatively well until September, 1919, when he noticed that he was losing his appetite. October 20, he consulted his physician, who ordered starvation for sixty hours to be followed by a milk diet. On the second day of this diet he for the first time developed a sharp pain in the left upper abdominal quadrant just under the costal margin, the pain persisting to the time of admission to the University Hospital, except when relieved by opiates, and having no relation to the taking of food. There had been no nausea, vomiting or gaseous eructations. For a few weeks he had noticed occasionally some distention in the epigastrium which would last for only a few minutes, disappearing suddenly. He had had constipation for three weeks, but had never noticed any blood in the stools.

His past history indicated that he had never been strong and that not infrequently he had been obliged to stop work for a few days. He had suffered from an acute gonococcal infection in February, 1919. His social habits were good except that, excluding the period of his service in the army, he had always been rather closely confined indoors. His father had died at 74 years of age of unknown cause, and his mother was living and well at 59. One brother had died at 16 of unknown cause.

Physical Examination.—The patient was mentally alert and very intelligent but somewhat apprehensive, of medium stature, poorly nourished, of sallow complexion, and had slightly prominent eyes. The teeth were apparently in good condition, but a little blood could be expressed from around the alveolar margins of two of them. A few posterior cervical glands were noted on the left side, and just above the inner end of the left clavicle there was a small mass, about the size of a robin's egg, firm, regular in outline, not attached to the skin or deeper structures, and freely movable. The dorsal vertebral spines and the scapulae were prominent. The heart and lungs gave no abnormal signs. A mass could be palpated underneath the right costal margin just to the right of the xiphoid, moving with respiration, and when the patient turned in bed to the left side this mass dropped to the left, apparently riding over the abdominal aorta. It could be held in this position with the finger as the patient resumed the supine position, and then be allowed to slip back slowly. This procedure suggested that the mass was about the size of a lemon, hard, slightly tender, movable, and that it had developed to the right of the median line. It moved with the pulsations of the aorta. When the epigastrium was observed closely, peristaltic waves could be seen traveling from left to right across the stomach area toward this mass; and as they reached the median line, there could be auscultated with the stethoscope a distinct squirt.

Blood examination at that time revealed: red cells, 4,800,000; white cells, 7,400, and hemoglobin, 82 per cent. Of the white cells, 68 per cent. were neutrophils, 25 small lymphocytes, 3 large mononuclears, 2 transitionals, 1 eosinophils and 1 basophils. The morphology of the red cells was normal. Gastric contents removed forty-five minutes after an Ewald meal on an empty stomach measured 90 c.c., and showed no free hydrochloric acid and a total acidity of 10. Another gastric study by the fractional method did not detect free acid at any time, and disclosed a steady increase in the total acidity from 8 at the end of fifteen minutes to 35 at the end of two and a half hours. In neither examination was occult blood found. Rectal examination was negative. Except for a trace of occult blood on one occasion, the feces were negative grossly, microscopically and chemically. The urine showed a trace of albumin, no casts, and some pus cells. The phenolsulphonephthalein test gave an elimination of 60 per cent. in two hours. The Wassermann reaction on the blood serum was negative.

A roentgenologic study of the gastro-intestinal tract was made by Dr. H. K. Pancoast, who reported, in part: "The stomach, six hours after an opaque meal, showed an almost complete residue. It was moderately dilated, vertical and low, with the greater curvature about 3 inches below the umbilicus. There was a very marked hyperperistalsis with deep segmenting waves. The waves reached the pylorus without interference. In the most dependent portion of the greater curvature in the prone posture there was a large, clear area about the size of a silver dollar. This seemed indicative of some mass in the stomach. The outline of the stomach was regular in this locality. The duodenum showed a constant filling defect strongly suggesting duodenal ulcer." It was Dr. Pancoast's opinion that the moderate dilatation was due to obstruction, probably of duodenal origin, and that the gastric lesion was probably a papilloma, although he suggested the possibility of its being carcinoma or sarcoma.

The army records have not been available to us; but while at Camp Meade this patient was under the observation of Dr. O. H. Perry Pepper of this clinic, and under the immediate care of Dr. W. B. Adams of Boston. Dr. Adams has confirmed the history as it was given to us by the patient, and stated further that the latter entered the base hospital in a tolerably fair condition, but rapidly became worse and almost died the night before the first transfusion, that he had a lemon yellow tint, and that a blood smear showed variation in the size and shape of the red cells, some polychromatophilia, and a high color index. Dr. Adams stated also: "No cause was found for a secondary anemia. No blood was found in the stools, urine or stomach contents, and he never had epistaxis or bleeding from the gums. No focus of infection was found except his teeth, and either one or two were pulled." Dr. Pepper remembers having studied the patient at that time, including an examination of blood smears, and having been forced to conclude that the case was one of pernicious anemia because of the absence of a cause for a secondary type of anemia.

Our conclusion, in view of the information presented above, was that the patient had a gastric neoplasm involving the most dependent portion of the greater curvature, and that the

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palpable epigastric mass was probably of the same nature and doubtless involved the duodenum, giving the constant filling defect described by the roentgenologist. The mass in the neck we interpreted as being glandular metastasis from the gastric lesion.

Operation.—Nov. 22, 1919, Dr. John B. Deaver performed an exploratory laparotomy and found an irremediable malignant condition. Following the operation the patient grew steadily weaker and finally died, Dec. 12, 1919. No necropsy was permitted.

Pathologic Findings.—At the operation, Dr. Deaver was able to expose by means of a gastrotomy a rounded, papillomatous mass about the size of a large walnut (2 by 3 by 4 cm.) attached by a pedicle to the mucous membrane along the greater curvature. The muscle coats did not seem to be involved. The mass which we had palpated he found to be a secondary deposit about the size of a fist attached to the lower edge of the left lobe of the liver. The glands along the greater curvature, and certain mesenteric glands, were enlarged and hardened. There were dense adhesions about the gallbladder and duodenum, giving the duodenal deformity found at the roentgen examination; but there was no apparent involvement of the duodenal wall by the specific process, and no duodenal ulcer was discovered.

The intragastric mass was removed, and was later thus reported on by Dr. Herbert Fox: "The specimen consists of a friable, irregular mass presenting a rather short, irregular pedicle, the latter softly fibrous. The outer part of the mass is velvety, pale yellow and pink, with here and there small spots of red. Under the microscope the stalk area is seen to consist of adult connective tissue up to where it joins the main mass, at which point it becomes younger, more like granulation tissue; and in this a cancer nest is found. At one extremity of the mucous surface a short stretch of nearly normal mucosa is seen, but fairly well mixed with it are irregular, dilated acini filled with hyperchromatic mucus-bearing cells. Acid cells are not seen in the acini. Further along, irregular acini are seen, with reduplicated epithelium, penetrating the basement membrane. Some of these acini are dilated and have papillomatous reduplication within them. Still further along and especially near the surface the epithelium is collected in small groups, surrounded by connective tissue, as in scirrhus. The tumor therefore shows a malignant papillomatous portion, a simplex portion and a scirrhous portion.

Fig. 1.—Pen drawing from one of the serial roentgenograms showing lesion along the greater curvature of the stomach and filling defect in the duodenum. The original roentgenograms will appear in connection with the article by Prendergrass, E. P., and Pancoast, H. K.: Report of a Case of Pedunculated Adenocarcinoma of the Stomach and Possible Errors in Diagnosis, Am. J. Roentgenol., to be published.

"Another section apparently taken across the mass shows a central fibrous tissue stalk from which branches radiate. On some of them may be seen a very distinct picture of papilloma. In the papillary branches there is very marked mitosis. The stalks are apt to have very thin connective tissue supports and very decided capillary supply. Small hemorrhages are seen in and beside them. Ulceration exists over the free surface of the tumor."

COMMENT

The most interesting feature of the case from the point of view of diagnosis is the simulation of primary anemia which it presented eighteen months before death. In this connection three questions present themselves for consideration: 1. Was gastric malignancy the primary pathologic condition and responsible for the severe anemia? 2. Was the anemia entirely independent of the gastric tumor disclosed at operation? 3. Was the malignant growth a terminal development in a pathologic process which in its benign form produced the anemia?

In reference to the first consideration, it must be admitted that an anemia of the degree shown by this patient in May, 1918, sometimes occurs in the late stages of gastric cancer; but one would not expect such a blood state a year and a half before death, especially with a subsequent return to a comparatively normal blood picture. Furthermore, it is generally conceded that gastric carcinoma is of particularly short duration in young persons, averaging in those under 30 years of age about three months. Finally, the general microscopic picture was active and reasonably recent, it being believed by the pathologist that such scirrhous change as was found could occur in a short time, and that there was no evidence in the specimen itself to suggest that the malignancy had been present so long as eighteen months.

Superficially, it might seem that the two hospital admissions were for different diseases; but the history suggests that the patient did not become entirely well at any time after his original anemia, and it is a well recognized diagnostic principle that different features of a continued illness should be explained on a common pathologic basis. The diagnosis of pernicious anemia at Camp Meade, however, was made by well trained men and deserves consideration. In favor of it were the extreme degree of anemia without apparent cause, the high color index, and the variation in size of the red cells. Against this diagnosis are the very conservative opinion expressed at that time by Dr. Pepper, that it was justified only by the absence of a cause for the secondary type; the absence of a specific statement as to large red blood cells and nucleated ones, and the decided improvement in the blood picture and general health with failure of a subsequent development of anemia.

Finally, there remains for consideration the question of a benign gastric lesion in 1918 with subsequent malignant change. Such a lesion might have given rise to a profuse hemorrhage before the patient's admission to the base hospital, or at least before the stools were carefully observed. The suggestion is ventured that bloody stools are ordinarily recognized by patients because of their odor, and one familiar with our army latrines can easily imagine how impossible this would be. Even in an army base hospital it is conceivable that ward men, not so well trained as nurses, might have overlooked the significance of a very offensive stool. It is probable also that during the patient's first few days in the base hospital efforts were directed primarily at overcoming the severe anemia by transfusions, and only secondarily at discovering its cause. When later a search was made, it can easily be imagined that all bleeding had stopped, as a result of the rest and the transfusions, and that the stools were free of blood.

The benign gastric lesions that are likely to give rise to hemorrhage are ulcer and tumor. In our case it is

necessary to explain how either could develop into such a malignant condition as was later discovered. It is obviously unreasonable to assume that any lesion involving various coats of the stomach wall, as would be necessary for an ulcer giving rise to marked hemorrhage, could later develop into a malignant tumor with only the most superficial connection with any but the mucous coat. A benign pedunculated tumor, however,

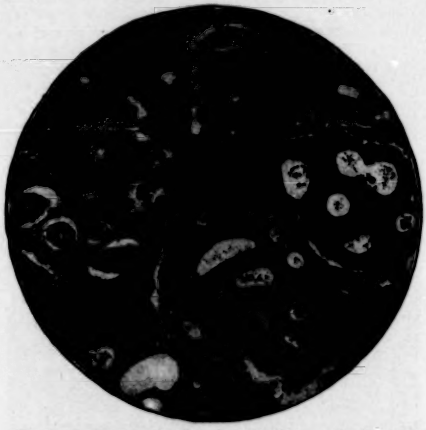

Fig. 2.—Section through soft outer part of tumor showing normal and cancerous acini side by side (courtesy of Dr. Herbert Fox).

might do so. Furthermore, such tumors do give rise to hemorrhage, the Fenwicks[1] stating that 10 per cent. of pedunculated stomach tumors bleed and that the loss of blood may be serious. Also, it is admitted generally by pathologists that such benign tumors may become malignant, the adenoma more frequently than the fibroma, myoma or lipoma. The latter tumors, furthermore, have their origin more deeply in the wall and, being of mesoblastic structure, more often become sarcomatous. Finally, the pathologic picture as described by Dr. Fox may be explained on the basis of a primary benign papillomatous adenoma.

SUMMARY

In this case of carcinoma of the stomach, the interesting features are:

1. The occurrence of an anemia, eighteen months before the patient's death, of such a degree as to suggest the primary pernicious type, and probably dependent on hemorrhage from a primary benign lesion.

2. The probability that the malignant change was secondary to a benign adenoma.

3. The polypoid nature of the tumor, without gross evidence of involvement of the deeper structures of the wall, and yet with unquestionable metastasis.

110 South Twentieth Street.

1. Fenwick, Samuel, and Fenwick, W. S.: Cancer and Other Tumors of the Stomach, Philadelphia, 1903, p. 308.

Clinical and Laboratory Diagnosis.—A diagnosis is the resultant probability derived from a consideration of all the evidences, whether or not they can be removed from the patient on a plate.—*Lancet*, Dec. 11, 1920.

ROENTGENOGRAPHIC EVIDENCE OF ULCER HEALING*

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I present herewith clear evidence as to the effectiveness of the principle of rest as applied to the treatment of gastric ulcer. The roentgenogram (Fig. 1) of the patient treated disclosed a large lesion of the lesser curvature. No doubt could be entertained as to the pathologic condition present. In addition, the patient was 43 years of age, and gave a history of gastric distress of two years' duration. For several weeks before his admission as a patient the pain in the epigastrium was so intense that his nights were sleepless.

Such a case might well be considered sufficiently representative to test the value of a therapeutic procedure. This procedure, for the purpose of obtaining a maximum degree of gastric rest, consisted in feeding the patient through an intestinal tube over a period of eight weeks. The fluid was introduced by the drop method. At the end of that time the tube was removed and feeding by the mouth begun. From time to time during the treatment, roentgenograms were taken to determine changes in the size of the ulcer. These retrogressive changes, as well as the intervals between the taking of the roentgenograms, are indicated in the accompanying illustrations.

Two facts appear to be clearly demonstrated: (1) the gradual healing of a gastric lesion, and (2) the improvement in the emptying time of the stomach.

Fig. 1.—Ulcer of lesser curvature.

Before instituting treatment, there was definite evidence of a six-hour residue of the barium meal (Fig. 2). Toward the completion of the patient's stay in the hospital, there was no longer any six-hour retention of barium (Fig. 3).

* From the Hoff General Hospital, now the U. S. Public Health Hospital No. 61, Fox Hills, Staten Island, N. Y.

DIETETIC PROCEDURE

It often happens that, if one begins by introducing a definite mixture of foods, distress may be produced. It

Fig. 2.—Six-hour residue of barium in stomach before treatment was begun.

is then difficult to determine which foodstuff is responsible. Furthermore, an increase in the amount of a particular food, or of the total bulk of the entire mixture given at any one feeding, as well as too rapid a rate of introduction of the fluid through the tube or

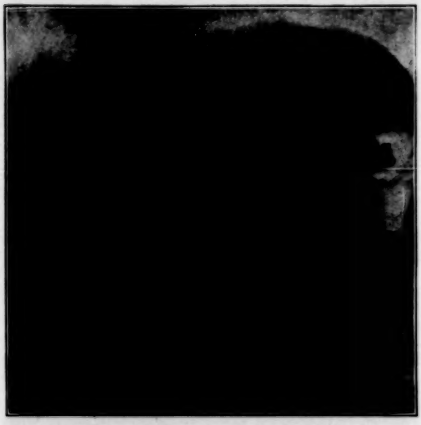

Fig. 3.—Absence of residue of barium in stomach fourteen weeks after beginning of treatment.

changes in the temperature of the fluid, may produce abdominal disturbance. It is therefore best to add one article of food at a time and to increase the amount carefully. If, on the addition of a new substance or an increase in the quantity, distress occurs, we are in a position to judge of the probable cause. By varying one factor at a time, a combination can be obtained that the particular patient can care for with comfort.

I begin the feeding with the introduction through the tube of physiologic sodium chlorid solution. This is of value for three reasons: 1. It permits us to determine whether the apparatus is in good working order. 2. It accustoms the intestine to the direct introduction of fluids. 3. Through the ease and simplicity of the process and the complete absence of distress because of the rapid absorption of the solution, it has an encouraging effect on the patient. Should a composite mixture, on the contrary, be introduced from the onset and abdominal pain result, it might militate against the continuation of the treatment.

The next step in the upbuilding of the feeding formula is the substitution of peptonized milk for the physiologic sodium chlorid solution. By putting the milk through the preliminary process of peptonization,

Fig. 4.—Condition two weeks after beginning of treatment.

the work of digestion in the intestine is reduced and the possibility of more complete absorption is increased. Careful attention to the rate of flow and to the warmth of the fluid is essential. The peptonized milk is then enriched, through the addition of dextrose. Since complex sugars in the intestine are finally reduced to simple sugars, absorption may be aided through the direct introduction of the simple sugar dextrose.

Thus, by giving peptonized milk and dextrose, instead of plain milk and lactose, the work of intestinal digestion is minimized, and more immediate and complete absorption aided. It has happened that some patients have been unable to take with comfort a mixture containing any other ingredients. It has been necessary in these cases to limit the food to this simple combination. The loss of weight in these cases was marked, and the length of time of treatment had to be curtailed.

In one case not only was the feeding limited to peptonized milk and dextrose, but an increase in the con-

centration of the dextrose produced distress. This interesting fact was repeatedly verified in the patient. The next additional substance is the white of egg; and if this is well borne, the yolk of egg is added. Not infrequently, the white of egg is well borne, when the addition of the yolk produces discomfort. Beginning with the white of one egg, the amount may be increased until two or even three whole eggs are given with each feeding.

The caloric value of the formula may be increased through the addition of cream to the feeding. Another way of increasing the food value and maintaining the nutrition of the patient is to administer olive oil by way of the tube, shortly after each feeding. Whether olive oil is given, and the total quantity injected, depends on the degree of comfort with which the patient cares for this addition. Usually about 15 to 30 c.c. are administered after each feeding.

Thus, step by step, is evolved a formula adapted to the nutritional need and comfort of the patient. This

Fig. 5.—Condition four weeks after beginning of treatment.

combination, as a rule, is administered three times a day.

In the evening the patient receives from 15 to 30 c.c. of orange juice, which is administered by way of the tube. This is valuable because of its vitamin content, and the laxative effect which it sometimes produces. As gastric patients, particularly while remaining in bed, are prone to constipation, this laxative effect sometimes produced by the orange juice is of importance.

After passing through the preliminary procedures for determining the most suitable mixture, the patient in whose case the roentgenographic evidence is recorded received peptonized milk, 300 c.c.; dextrose, 60 gm.; cream, 30 c.c., and the whites of two eggs. This was fed, drop by drop, three times daily. Shortly after each meal he received 20 c.c. of olive oil. At night he received 30 c.c. of orange juice. The patient weighed 134 pounds when treatment was begun. At the end of eight weeks, when the tube was removed, he weighed 127 pounds.

In this particular case I used a type of rubber tubing that swelled rapidly in the intestinal fluid, so that the metal bulb which I sewed on with chromic catgut

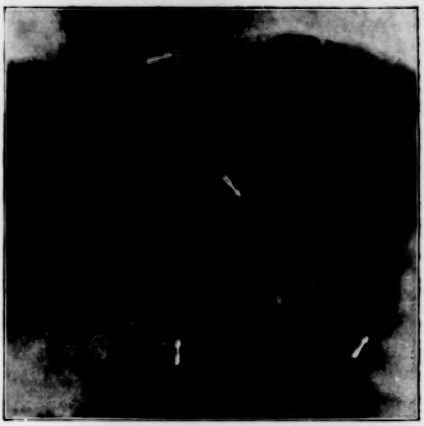

Fig. 6.—Condition six weeks after beginning of treatment.

adhered, although the catgut had become entirely digested. This possibility has since been obviated by the employment of a special grade of rubber tubing and by enlarging the inner lumen of the bulb. In order to overcome the danger, which I consider to be real, that may result from the persistent pressure of the

Fig. 7.—Condition eight weeks after beginning of treatment.

metal bulb on the mucous membrane, I pulled up on the rubber tubing daily in order to change the position of the end piece, and so lessen the possibility of a new ulceration. In a case such as the one under discussion, in which the tube remained within the intestine for

eight weeks, this is unquestionably a matter for important consideration.

After the removal of the tube, feeding by the mouth was instituted, which was gradually increased both as to amount and variety. On the day of discharge from the hospital, the patient weighed 145 pounds, and was in excellent condition.

Paralleling the improvement noted in the roentgenograms was the clinical improvement. On admission, the pain in the epigastrium was so severe that he could not sleep during the night. During the first few days after the tube had been inserted, he received bismuth subcarbonate, 30 grains, three times a day. This was then decreased to twice a day, then once a day, and with the cessation of pain on the eighth day, was discontinued entirely.

During the next two weeks, however, he complained of moderate heartburn. Thereupon this also ceased,

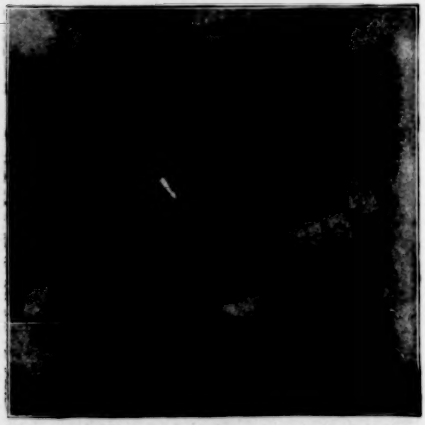

Fig. 8.—Condition fifteen weeks after beginning of treatment and seven weeks after removal of tube.

and from then on he continued in excellent condition, free from all abdominal distress.

1 West Eighty-Fifth Street.

Primary Gonorrheal Mastitis.—What is considered the first recorded case of primary gonorrheal mastitis with secondary genital infection is reported by W. H. F. Oxley and J. Dundas (*Brit M. J.* **2**:744 [Nov. 13] 1920). A married woman, seven months pregnant, suffered a contusion of the breast which became swollen and "burst" about six weeks after the injury. Examination disclosed a swelling the size and shape of a tea bun, of India rubber consistency, in the upper and outer quadrant of the breast. Thin pus was exuding from two sinuses separated by a thin bridge of tissue. A smear contained pus cells crowded with typical gram-negative diplococci, which were identified as gonococci. Questioning revealed the fact that the patient was suffering from an acute urethritis and vaginitis accompanied by a copious discharge containing pus cells packed with gonococci. The patient was positive that the genital inflammation followed the mammary involvement by a number of weeks. The husband of the woman denied ever having had gonorrhea, and presented no symptoms.

SECOND IMPROVED METHOD FOR THE DEMONSTRATION OF SPIROCHAETA PALLIDA IN THE TISSUES

WARTHIN AND STARRY'S SILVER-AGAR COVER-GLASS METHOD *

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AND
ALLEN C. STARRY
ANN ARBOR, MICH.

In January, 1920, we described [1] our first improved and more rapid method for the demonstration of *Spirochaeta pallida* in tissue sections, formaldehyd-fixed, embedded in paraffin, and mounted on cover-glasses. The essential features of this method consist in the application of the silver nitrate solution and the reducing substance in small mass action between cover-glasses, so that a minimum amount of silver and reducing substance are admitted through capillary attraction to the section. When this is managed as directed in the method, the spirochetes become more heavily impregnated than the tissue elements, standing out in sufficient contrast to the latter, without the formation of a concealing precipitate. We found this to be the first practical method of applying silver impregnation to spirochetes in single sections, and a decided improvement over the Levaditi method of impregnation in bulk. One of the chief advantages gained was the great saving in time—from ten to fourteen days to twelve hours for the new method. By it also sections from ordinary diagnostic blocks, fixed in formaldehyd, can be used whenever the histologic findings suggest the occurrence of spirochetal infection. We have found the method more certain and less capricious than the old Levaditi method or any of its modifications. Since publishing a description of it we have had corroboration of these points from a number of other laboratory workers.

We are now presenting a method which we consider as great an improvement on the former, as that was on the older methods, in that it possesses these advantages:

1. The time is much shortened; the entire procedure may be carried out in less than one hour after the sections have been mounted on cover-glasses.

2. The results are more certain. We have demonstrated spirochetes in tissues by this method when all others have given negative results.

3. It is more simple, and more easily carried out.

WARTHIN AND STARRY'S SILVER-AGAR METHOD

1. Tissues fixed in neutral formaldehyd.

2. Embed in paraffin.

3. Cut, and mount sections on cover-glasses with albumin fixative.

4. Remove paraffin (xylene, alcohol, water).

5. Rinse cover-glass with section in 2 per cent. silver nitrate; cover wet section with another perfectly clean cover-glass, so that they are held together by capillary attraction; then place them carefully in a bottle of 2 per cent. silver nitrate and place in incubator for from thirty minutes to one

* This research has been carried out under a grant made by the Interdepartmental Social Hygiene Board, Washington, D. C.
* From the Pathological Laboratory of the University of Michigan Medical School.

1. Warthin, A. S., and Starry, A. C.: Rapid and Improved Method of Demonstrating Spirochetes in Tissues (Warthin and Starry's Cover-Glass Method), Am. J. Syph. 4:97 (Jan.) 1920.

hour; then remove from the silver nitrate and separate cover-glasses.

6. Place cover-glass with section in this reducing mixture:

	C.c.
Two per cent. silver nitrate solution	3
Warm glycerin	5
Warm 10 per cent. aqueous gelatin solution	5
Warm 1.5 per cent. agar suspension	5
Five per cent. aqueous hydroquinone solution	2

7. After the section is reduced, remove and rinse in 5 per cent. sodium thiosulphate (hyposulphite) solution.

8. Rinse in distilled water.

9. Absolute alcohol, xylene, balsam.

GENERAL CONSIDERATIONS

Fixation should be complete to give the best results. Thin slices of tissue, from 5 to 7 mm. thick, left in 4 per cent. neutral formaldehyd (10 per cent. formaldehyd solution) from one to three days give the best results. If tissue is put into alcohol before the formaldehyd fixation is complete, the results are less satisfactory. If the formaldehyd fixation is complete it is not necessary to wash the tissue in water before putting it into 96 per cent. alcohol. Some of our best results have been obtained in tissues kept many years in 4 per cent. formaldehyd. The importance of fixing tissues as soon as removed from the body, or as soon as possible after death, must be emphasized again.

From 96 per cent. alcohol the tissue is run through absolute alcohol, two changes of xylene and two of 52 C. paraffin. The sections should be cut about 5 microns thick for the best results, although from 8 to 12 microns give practical sections. As they are cut they are floated on warm distilled water which has recently been boiled to drive off the air. The under or shiny side of the section is placed on the water. When the sections have flattened out on the warm water they are caught up on the prepared cover-glasses, the water blotted off, and then dried over the flame or in the drying oven. The cover-glasses should be No. 1 or thin No. 2, three-quarter inch squares, or larger if the size of the section requires. They must be perfectly clean, free of all dirt and grease. A *minimum* amount of albumin fixative should be spread evenly on the clean cover-glass, so that there will not be enough of it to become heavily stained. The prepared cover-glasses should be placed on a clean cardboard, covered with clean paper and dried in the incubator for twelve hours before using. They should not be dried by passing through the flame. It is advisable, therefore, to keep a supply of such prepared cover-glasses on hand.

After the mounted paraffin sections have been dried on the cover-glasses, the paraffin is removed by heating over the flame and dropping into xylene, followed by absolute alcohol and then distilled water.

The silver impregnation should be carried out in the dark (dark bottles covered with black paper). Wide-mouthed bottles with tightly fitting corks should be used. The mounted cover-glass is taken from the distilled water, rinsed in 2 per cent. silver nitrate solution, and then covered with another clean cover-glass also wet with the silver solution. The silver solution should always be freshly made, and should never be used after it is from 3 to 4 days old. During this time the same solution may be used over and over again, if kept uncontaminated and in the dark bottle. The bottle should contain enough of the silver solution so that when the cover-glasses are placed on edge against the side of the bottle, it will not completely cover them. The cover-glasses are held together by capillary attraction, and if placed against the side of the bottle wet and the silver solution then poured in so as not to cover them completely, they will be held upright also by capillary attraction, and will not slip apart. The bottle is then tightly corked and placed in the incubator for from thirty minutes to one hour. After impregnation, the cover-glasses are removed, separated, and the mounted section put into the reducing mixture section side up.

The reducing mixture consists of 3 c.c. of a 2 per cent. silver nitrate solution, 5 c.c., of warm glycerin, 5 c.c. of a warm 10 per cent. gelatin solution, and 5 c.c. of a 1.5 per cent. warm agar suspension, to which mixture from 0.25 to 2 c.c. of a 5 per cent. hydroquinone solution is added just before using. The warm glycerin and gelatin solutions and the silver nitrate are first thoroughly mixed, then the agar suspension is stirred in with a glass rod, and finally the hydroquinone, just before the sections are placed in the mixture. The agar suspension must be carefully made. One and five-tenths gm. of agar cut up into small bits is added to 100 c.c. of distilled water and carefully and slowly heated to the boiling point, being constantly stirred with a glass rod. When the agar has gone into fine suspension, the solution is poured into a bottle, which is corked lightly and kept on top the paraffin oven. Should the agar become flaky and settle out, it must be brought to the boiling point again

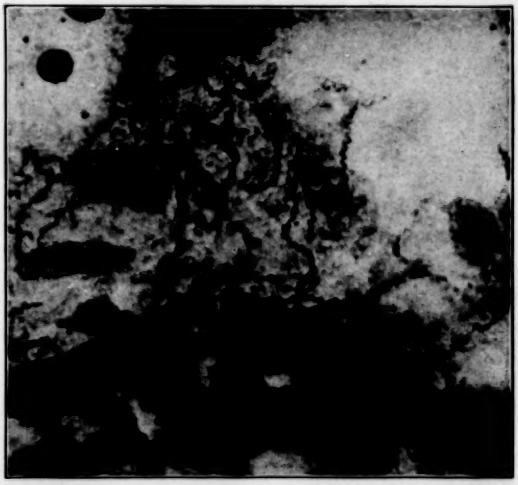

Fig. 1.—Spirochaeta pallida in kidney of a congenital syphilitic. The spirochetes are in small, localized, inflammatory areas between the tubules and around the blood vessels. Tissue fixed in formaldehyd, blocked in paraffin; stain obtained by silver-agar method within one hour after cutting sections. Photographed with a Zeiss 2-mm., oil-immersion, compensating ocular No. 4, with a bellows length of 85 cm.

with constant stirring. It should be just thin enough to pour, and not too thin and watery. The glycerin and gelatin solutions can also be kept warm on top the paraffin oven.

The amount of hydroquinone added to the reducing mixture varies somewhat with the tissue and the fixation. In general it is best to use as small an amount as possible so that the reduction is not too rapid. A slow reduction usually gives the best results; but if too slow, precipitates will form and the spirochetes will not be well stained. Usually from 0.5 to 1 c.c. gives the best results; but in some cases more may be required. After the hydroquinone has been added, the mixture is stirred vigorously for a short time. It is then poured into a staining dish, and the mounted section removed from the silver solution, the cover-glasses separated, and that holding the section immersed in the reducing mixture for a number of seconds until reduction is complete. The longer the section is in the reducing mixture, the darker it will be. When it becomes a light reddish brown it is removed and washed in a 5 per cent. sodium thiosulphate solution, then rinsed in distilled water, dehydrated in absolute alcohol, cleared in pure xylene, and mounted in balsam. When the sections have been properly stained they will now be light reddish brown. If a deep brown or black, the tissue will be too deeply stained and the spirochetes not sufficiently contrasted. Usually the albumin fixative on the cover-glass about the section is stained somewhat, and this can be rubbed off with a clean cloth, care being taken not to touch the section with the cloth. The upper surface of the cover-glass should be similarly cleaned. The section, of course, must never be allowed to get dry after the paraffin has been removed.

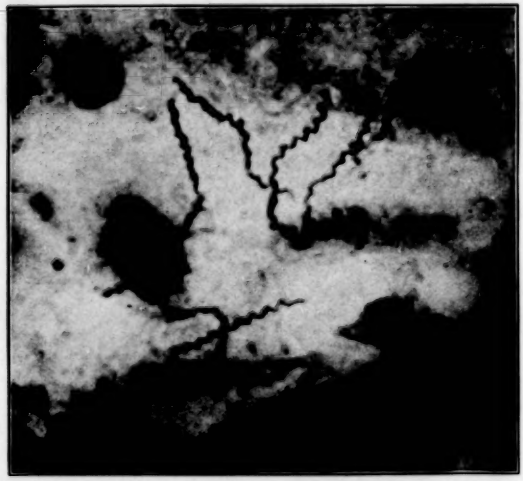

Fig. 2.—Spirochaeta pallida in kidney of a congenital syphilitic. The spirochetes are in small, localized, inflammatory areas between the tubules and around the blood vessels. Tissue fixed in formaldehyd, blocked in paraffin; stain obtained by silver-agar method within one hour after cutting sections. Photographed with a Zeiss 2 mm., oil-immersion, compensating ocular No. 4, with a bellows length of 155 cm.

The use of the second cover-glass during the impregnation in the silver solution seems to be an essential feature of the method. We have never been able to secure good results by leaving the sections uncovered during impregnation. The spirochetes will stain only very faintly or not at all; precipitates more readily occur, and the tissue elements are more deeply stained.

It is important that the alcohol used be pure, and contain no mercuric chlorid, copper or other metal. Alcohol dehydrated over copper sulphate should not be used. The tissues are easily mordanted, and the differentiation of the spirochete made difficult or impossible.

All solutions should be made in distilled water; and all glass-ware must be clean. Acid fumes should be avoided.

Our experience has taught us that not all formaldehyd-fixed tissues react to the silver impregnation method in the same way. Controls show that, with the same solutions and same conditions otherwise, some tissues appear granular, some a bright yellow, and others brown or black, while others will not stain at all. We believe that these differences in staining reactions are in part due to slight difference in fixation, contamination of the formaldehyd, etc., giving rise to differences in the process of reduction. We have found that by changing the reaction of the tissue before staining, it is often possible in such cases to affect the tissue conditions to such an extent that good staining results can be obtained. The best results have been obtained by the use of a 1 per cent. solution of uranium or copper nitrate, or a 0.5 per cent. solution of ferric alum. This is accomplished by placing the sections, from water, after the removal of the paraffin, in one of these solutions for several minutes, and then washing thoroughly in distilled water before putting them into the silver solution. These solutions do not act uniformly in all cases. Uranium nitrate usually gives the best results, as, after its use, the tissue elements do not stain so deeply, leaving the spirochetes better differentiated. Copper nitrate and ferric alum have given especially good results in isolated cases of poor formaldehyd fixation. If tissues are well fixed in formaldehyd, it is not necessary to use any one of these reagents, and they should be tried only when the method proper does not yield good results.

Aside from the use of the second cover-glass to cover the section during the impregnation, the successful operation of the method depends on the reduction process. This can be controlled to a great degree by varying the amount of hydroquinone and also by the temperature. After a little experience in judging the color obtained by reduction there should be no trouble in obtaining sufficiently good stains for diagnostic purposes. With a little more skill obtained by practice, the most beautiful preparations can be easily obtained. Any failures or inconstant results are due to differences in the physical conditions of the reducing mixture or in the fixation of the tissue. As mentioned above, changing the reaction of the tissue by means of uranium or copper nitrate, or by ferric alum, will sometimes remedy the difficulty.

We regard this method as by far the best one yet devised for the demonstration of spirochetes in tissues. The organisms are dark reddish brown to jet black against a very light brown. With experience it can be so manipulated that only the spirochetes and the nuclei of the tissue are stained, so that a beautiful contrast for demonstration purposes or photomicrographic work is obtained.

Further, the rapidity of the method as compared to all other methods for spirochetes in tissue, and its applicability to single sections make it the most practical method for diagnostic work yet devised.

MULTIPLE RENAL AND URETERAL STONES IN AN INFANT OF ELEVEN MONTHS

WITH RESULTS OF URETERONEPHRECTOMY

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SAN FRANCISCO

The formation of urinary stones in infancy is very uncommon. In 1912, Bokay [1] collected from the literature 1,836 instances of urinary calculi in children under 15. The majority were vesical (1,309) or urethral (508). Only nine of the total number of patients had renal stones. What number of the nine cases occurred in infants less than a year old (only forty-five of the total 1,836 patients were under 1 year of age) is not stated, but it is improbable that more than a few, if any, so occurred. Israel, with his wide experience, up to 1911, had operated on only two children under 5 for renal calculi, and Rafin,[2] in an analysis of thirty-nine cases of renal or ureteral stone recognized at operation or necropsy, finds none of the patients under 1 year of age and only five between the ages 1 and 5 years. None of Kelly's [3] ninety cases and only one of Bugbee's [4] 198 cases occurred under 10. But Rayer [5] writes that "renal calculi have been observed at all ages including the fetus and infant," and he cites ten cases, two fetuses of 6 and 8 months, three new-born infants of 1, 2 and 8 days, and five of 3, 4, 6 and 8 months and 1 year. No doubt a careful and laborious search of the literature would reveal many more cases than indicated, but the great rarity of renal calculi in the very young is indisputable. I have seen one other case in a boy of 5.

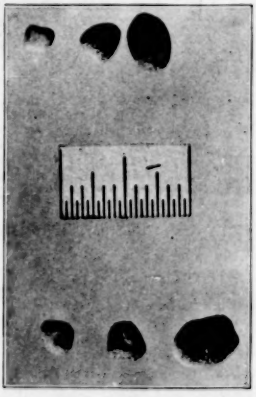

Fig. 1.—The upper three stones were passed spontaneously. The lower three were removed at operation: the small smooth one at the left, from the kidney pelvis; the two other, larger and rougher, from the ureter.

The tender age, 8 months at onset, and the extensive surgery, ureteronephrectomy, give sufficient interest for recording this case.

REPORT OF CASE

A full term, 7½ pound girl was born, May 29, 1918, of healthy Austrian parents. The pregnancy and labor had been normal and the delivery easy. It was breast-fed for three months and then given diluted condensed milk. No water, other than that in the milk, was ever given to the child until after 9 months of age. The weight at 6 months was 25 pounds; at 9 months, 30 pounds, and on the day of admission to the hospital, 13 pounds. The only illness was bronchitis, which had persisted off and on in the form of a troublesome cough since the child was 3 months old.

Fig. 2.—Two shadows (as indicated by arrows) in the lower left ureter, and one smaller shadow in the region of the left kidney.

Suddenly, when 8 months old, there was complete retention of urine for three days with great suffering, which quickly subsided coincidentally with the passage of a large quantity of urine. Six days later a round stone the size of a pea was passed through the urethra without difficulty. On the following day, however, severe convulsions for an hour accompanied the passage of a second similar stone. One month later, three other stones (Fig. 1) were spontaneously voided, the last, 1 cm. in diameter, its passage being preceded by high fever for two or three days and, for nine hours, by urinary retention with evidence of great suffering.

On examination, May 12, 1919, a normally developed but emaciated child gave otherwise negative findings. The temperature showed a daily variation from 36.2 to 38.4 C. (97 to 101 F.). The urine (catheterized) was cloudy, and showed a faint trace of albumin, no sugar and no casts. Microscopically, a few red blood cells, many pus cells and many rod-shaped organisms were seen. The total phenolsulphonephthalein was 35 per cent. for one hour. Plain roentgen-ray examination revealed one shadow in the region of the left kidney and two in the line of the lower portion of the left ureter (Fig. 2). Cystoscopic examination revealed the left ureteral orifice cystic and the size of a pinhead. The right was negative. It was not possible to pass the left catheter farther than 2 to 3 cm., whereas the right was readily passed to the pelvis. The left urine was purulent and loaded with bacilli; the right, negative.

It was thought that the baby had pertussis, on account of the loose, persistent cough. Fluids to the amount of from 1 to 1.5 liters daily were given, and the child was sent home in the expectation of the remaining stones passing spontaneously, or until the whooping cough had cleared up, when operation might be considered.

The child was returned in July, 1919, sturdy looking and weighing 7,100 gm. (15⅝ pounds). The urine was now clear,

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2. Rafin: De la lithiase rénale et urétérale chez l'enfant, Ann. d. mal. d. org. gén-urin. **1**: 481, 1911.
3. Kelly and Burnham: Diseases of the Kidneys, Ureters and Bladder, 1914.
4. Bugbee, H. G.: A Clinical Study of Lithiasis, J. A. M. A. **69**: 1492 (Nov. 3) 1917.
5. Rayer: Traité des maladies des reins, 1841.
6. Hinman, Frank: Cystoscopic Study of Urologic Conditions in Children, Am. J. Dis. Child. **17**: 305 (May) 1919.

but showed under the microscope a few pus cells and many bacilli. The total phenolsulphonephthalein output for one hour was 30 per cent. Roentgen-ray studies revealed the three stones in the same relative positions as previously demonstrated. Several unsuccessful attempts were made to dilate the left ureter and remove the stones cystoscopically. The small cystic left ureteral orifice was slit open, but it was not possible to pass instruments or a catheter to the stones.

After consultation with Dr. W. P. Lucas, operation was decided as the justifiable course and, July 22, left ureteronephrectomy was performed. The bladder was exposed extraperitoneally through a midline suprapubic incision, and the lower portion of the left ureter readily isolated. It was dilated and thickened, but no stones in the position indicated by the roentgen ray were found. Through a small slit in the ureter a probe located crepitation high up in the ureter near the kidney where the stones had migrated, doubtless as a result of the manipulation incidental to ureteral exposure. The stones were so round and large that seizure in the ureteral forceps was impossible. The incision was slightly enlarged, and extraperitoneal dissection of the ureter to the renal juncture effected. At this point it could be felt and seen that marked constriction was present; and in stripping the ureter to deliver the stones to its lower portion where they might be more easily removed, the ureter tore loose from the kidney at this constricted, inflamed area. Nothing remained as feasible but to perform ureteronephrectomy. The ureter and its two stones were removed, and then through a lumbar incision the kidney was quickly excised. Recovery was uneventful and rapid, and the child has remained perfectly well.

The stones were all similar in structure, semispherical, very light in weight, with smooth or slightly granular surfaces. On section they showed the characteristic concentric arrangement of layers.

The kidney showed diffuse but mild pyelonephritis and considerable hydronephrotic atrophy. In view of the marked inflammatory stricture at the ureteropelvic juncture, its preservation, even had the stones been removed successfully, is very doubtful. The inflammatory strictured area was quite extensive, and progression of the hydronephrotic atrophy almost inevitable in consequence.[7]

The probable factor in the formation of these stones would seem clinically to have been the diet, from which, for so many of the early months of life, water was absent.

516 Sutter Street.

ACUTE MYELOGENOUS LEUKEMIA

CARL W. MAYNARD, M.D.
PUEBLO, COLO.

In a recent article on acute myelogenous leukemia, Gorham [1] defines the conditions as "a fatal disease of unkown etiology, characterized clinically by a short course, fever, hemorrhages, ulcerative changes of the mucous membranes and moderate splenic enlargement." He further gives a very complete discussion of the probable pathogenesis of the disease, its pathology, and of the hematologic questions involved, with a bibliography of the subject to 1917. At that time he had collected a total of seventy-three instances, which are grouped as twenty-eight proved, twenty-seven probable and eighteen doubtful cases, on the basis of these requirements for a proved case: (1) an aleukemic or subleukemic stage; (2) an acute downward course with death usually ensuing in from one to four months; (3) the characteristic blood picture of myeloblasts and myelocytes, with the transition forms between the two; (4) the typical gross and histologic findings of the liver, spleen, bone-marrow and lymph glands, and (5) the specific proof of myeloid elements by enzyme reactions.

In an attempt to add an at least "probable" case to those already reported, the following is submitted:

REPORT OF CASE

Mrs. H. L., a white, American woman, aged 35, with three children living, had had three abortions, two of which were septic. The previous history was otherwise negative.

March 30, 1920, she had two teeth extracted because of apical abscesses. Two weeks later mouth infection was observed, which showed *B. fusiformis* and spirilla. This condition persisted for about three weeks. The patient then returned to her work as a practical nurse, but complained of feeling as though a "cold in her head" was developing.

May 28, she complained of malaise and general aching. The temperature was 99.8.

May 29, she felt better. The temperature was 98.6.

May 30, on arising she felt well, and ate a normal breakfast; she was able to take her patient for a walk. At the end of about one hour she began to feel sick, and took her temperature, which was above 102. She returned to her own home, and went to bed. The temperature at 1 p. m. was 103.4; at 5 p. m., 104.8. She complained of severe general muscular pain, and a tightness or constriction of the throat; also of "pleurisy" pain in the right side. She had a slight cough, and was every nervous and restless.

Myeloblast (*A*) and premyelocyte (*B*) from case of acute myelogenous leukemia. Wright stain. Note the delicate structure of the nuclear chromatin, especially noticeable in the nongranular myeloblast.

May 31, in the morning the temperature was 100.8; the pulse, 116, the general condition being the same as on the preceding day. The evening temperature was 104.8. She had pain in the head and the right eye. She insisted there was a swelling in the throat which would choke her. The throat was red, but no membrane or patches could be detected. There were râles at the base of the right lung. The cervical glands were shotlike.

June 1, the condition was about the same. The patient had a slight pallor.

June 2, the axillary temperature was 103.6; the pulse, 130; the right eyelids were swollen and ecchymotic. There were sôrdes on the teeth. There was slight mental confusion at intervals.

June 3, the axillary temperature was from 101.4 to 104.4. The right eyelids were swollen shut, and purplish. There was hemorrhage from the nose, mouth and throat, and very profuse hemorrhage from the uterus. The spleen was tender, but not palpable below the costal margin. At 8 p. m. the left

7. Geraghty and Frontz (A Study of Primary Hydronephrosis, J. Urol. 2: 161 [June] 1918) have recently emphasized the significance of inflammatory strictures at the ureteropelvic juncture in adults, and their findings are well illustrated in an infant by this case.

1. Gorham, L. W.: Acute Myelogenous Leukaemia, Albany M. Ann. 38: 201, 1917.

eyelids showed beginning ecchymosis, and the cervical glands were palpable as pea-size.

Dyspnea, apparently from fluid in the lungs, and continuing loss of blood from all the mucous surfaces, terminated in death at 8 a. m., June 4.

This case was considered and treated as a severe and obscure infection until a blood examination, made the afternoon before the end, gave: erythrocytes, 2,688,000; hemoglobin, 48 per cent. (Sahli); leukocytes, 7,600: mature lymphocytes, 18 per cent.; immature lymphocytes, 6; endotheliocytes, 4; polymorphonuclear neutrophils, 25; neutrophil myelocytes, 5; myeloblasts and premyelocytes, 42.

The predominant cells were from 21 to 22 microns in diameter, and characterized by oval nuclei with delicate chromatin structure, very irregular cell boundaries, and cytoplasm either nongranular or containing a few coarse granules. The oxydase reaction[2] to identify them as of myelogenous origin was not made, but the presence of the coarse granules in many of the cells, the size and the delicate chromatin structure of the nuclei, defined them as distinctly different from the lymphocytes found in the same smear.

Permission for a postmortem examination was not obtained, no record of a previous blood count on the patient has been found, and because of the late identification of the disease only the one blood examination was made.

Clinical Notes, Suggestions, and New Instruments

ASCARIS LUMBRICOIDES CAUGHT IN THE EYE OF A SHOE-BUTTON

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Professor, Hygienic Laboratory, United States Public Health Service

Recently in examining the ascarids in the Division of Zoology, Hygienic Laboratory, I refound a forgotten and rather unusual specimen (No. 10844), namely, a female *Ascaris lumbricoides* which is threaded through the eye of a large shoe-button. The worm is securely fastened about one-third its length from the head. This specimen was sent to me in 1910 by Dr. F. K. Travers Warrick of Richmond, Va., but apparently the case has not yet been reported. Somewhat similar cases have been recorded in the literature:

Stockbridge reports the case of a child in Bath, Maine, who swallowed several dress-hook eyes; later these were voided, and "each eye was completely threaded by a worm [*A. lumbricoides?*], 5 to 7 or more inches in length. Some had caught three; and in others, the worm had succeeded in passing through two of the rings."

The *Boston Medical and Surgical Journal* reports somewhat similar cases from the museum of the Albany Medical College: "There are two or three large lumbrici [*A. lumbricoides*], once or twice piercing the holes of a common black metallic suspender button; another specimen, in which the worm is caught in two places of a plated-wire eye . . . and a third, with a firm thread apparently fastened securely around near the middle of its body. These were voided from the intestinal canal of different children." The author also reports the case of a thimble in the nostril, and from the title of the article the presumption is that this too was a worm trap, as catalogued in the literature from cross-referencing the title, but such is not the case.

Williams records a case of *Lumbricus* (i. e., *A. lumbricoides*) expelled by a child in Boston. The worm was fastened in the eye of an ordinary dress-hook.

Jackson exhibited before the Boston Society of Natural History an *Ascaris lumbricoides* (passed by a child) with about an inch of its body inserted through the eye of a common dress-hook. He observed that this example illustrated the singular tendency of this worm to crawl through perforations in the intestine, into the duct of the gallbladder, or into the appendix ceci. Nothing in the original publication indicates whether or not Jackson's specimen is the same as Williams', but the date, locality, and fact that the patient in both papers was a child, gives rise to the thought that both authors may have recorded one and the same case.

2. Beifeld: Acute Myeloid Leukemia, Arch. Diagnosis, July, 1915. Ward, Gordon: The Infective Theory of Acute Leukemia, Brit. J. Child. Dis. 14:10, 1917.

A CASE OF ABDOMINAL PREGNANCY AT FULL TERM

A. R. ROZAR, M.D., MACON, GA.

History.—A. S., a colored woman, aged 35, referred to me for operation at the Macon Hospital, Nov. 11, 1920, for pathologic pregnancy, by Dr. Boddie, a colored physician of Forsyth, Ga., was the first born of a family of ten children, of whom eight were living. She had measles, chickenpox, smallpox and whooping cough in childhood, but had had no serious illnesses since. She denied gonorrhea and syphilis. She had been married fourteen years, but had had no previous pregnancies. Her husband was living and well. Menstruation began at the age of 13, and was of normal periodicity, of three days' duration, moderate in quantity, and not painful except for a slight backache the day before. There was no intermenstrual flow. Leukorrhea, moderate before marriage, had been only slight since. The patient became pregnant in March, 1920. She stated that during the first three months she vomited almost constantly during the day and night, the vomitus being a greenish liquid with a sour odor. The vomiting was made worse by drinking or eating; and especially toward the last of the vomiting period there was a slight griping in the abdomen and a congested feeling in the head, with blurring of vision. At the end of three months vomiting stopped and did not recur throughout the remainder of pregnancy. An intermittent pain came on about the fifth month and increased in severity toward the last; it was cramping, griping, and located just below the umbilicus on the left side. There was only slight backache during pregnancy. The stools were normal.

Examination.—The patient was fairly well nourished and well developed and of average size. The heart and lungs were normal. There appeared to be a normal, full-term pregnancy and a rather distended bladder. Palpation revealed a large oval tumor resembling a full term, pregnant uterus. As soon as any palpation was begun there was a painful contraction, and the swelling corresponding to the full bladder became more round, with a feeling of a subserous fibroid tumor with a sessile base. The movements of the child could be distinctly felt. The fetal heart sound could be indistinctly heard on the left side of the abdomen 2 inches below and 1½ inches to the left of the umbilicus. On digital examination the vagina seemed to be full of a tumor that went up against the pubis. On pushing this tumor up and back the finger could be forced between the tumor and the pubis, and the cervix, very high up, could be indistinctly outlined.

Operation and Result.—The abdomen was opened, November 13. The uterus, about the size of a three months' pregnancy, was in front, with the pregnancy behind. The placenta was attached to the posterior surface of the uterus, the right broad ligament and intestine. The baby could be seen distinctly through the amniotic membranes and every movement observed. It was a simple breech presentation, with the breech in the culdesac and corresponding to a left sacro-anterior position. The abdominal contents were packed off with towels, the membrane ruptured with the point of scissors, the child delivered, the cord clamped and cut, and a crying, 6 pound baby delivered to an assistant. The attachment of the placenta to the uterus and broad ligament was easily separated, but the separation from the intestine was more difficult. It all came away fairly easily, however, with the exception of small tabs. The hemorrhage was about that of a normal delivery. Two cigaret drains were inserted into the culdesac and the abdomen closed. There was no discharge from the uterus after operation. The milk appeared about the fifth day. The patient was allowed to sit up out

of bed on the fifteenth day, and she and the baby were discharged from the hospital, December 1.

COMMENT

Some interesting points in connection with this case are: the absence of unusual symptoms during the course of the pregnancy; the enlargement of the uterus to accommodate the attachment of the placenta, and the ease with which contractions of the uterus were stimulated on palpation. It seems strange that these contractions did not detach the placenta and cause hemorrhage before operation. As a diagnostic point, in a case of advanced pregnancy when the cervix is pushed up very high anteriorly, it is well to consider an ectopic gestation.

Cragin reports six cases at or near full term in which he operated, delivering three living babies with recovery of the six mothers. In his cases he did not insert drains, but in one case it was necessary later to drain Douglas' pouch.

Hutcheson[1] reports a case in which a well formed, 8 pound baby was delivered.

As to the operative mortality in these cases, Beck[2] says:

> After the sixth month the best time proved to be the tenth month. The reason for this appeared to be that in the last month only 30 per cent. of the fatal maternal cases died of hemorrhage, while before this 60 per cent. succumbed in this way. From the standpoint of the child, the best time to operate was found to be just before the last two weeks of pregnancy. The management of the placenta in these cases is the main difficulty. Yet the mortality has gradually been reduced to 11.1 per cent. in cases in which the placenta was removed. Such removal should be effected whenever possible. In cases in which the placenta has been left and the wound drained until it came away the mortality has been 38.7 per cent.

These percentages are not definite as to cases at full term, for they include cases from the sixth to the tenth month, and it is difficult to get accurate statistics when we have so few cases and these are so widely scattered. These figures were taken from a series of 240 cases of ectopic pregnancy in which operation was performed at all periods.

I can find no reference, except the few reported cases, as to the percentage of living babies.

207-208 Grand Building.

MODIFICATION OF STAIN FOR DIPHTHERIA BACILLI

Henry Albert, M.D., Iowa City

During the early part of last year, I described a new stain for diphtheria bacilli.[3] We have used it on a large series of specimens and find that although the granules of the bacillus always stain very well, at times the body of the micro-organism stains rather faintly. This occasionally leads to some difficulty in distinguishing between diphtheria bacilli and cocci which contain metachromatic granules.

The failures on the part of the body substance of the diphtheria bacillus always to take the proper stain is due in part to the age of the bacillus and in part to the strength of the iodin solution used. We have accordingly made several slight modifications which have resulted in the securing of uniformly good results. The modifications consist of the addition of methyl green to Solution 1 and an increase in the iodin content of Solution 2.

The formulas of the solutions as modified are:

SOLUTION 1

Toluidin blue	0.15 gm.
Methyl green	0.20 gm.
Acetic acid (glacial)	1.00 c.c.
Alcohol (95 per cent.)	2.00 c.c.
Water (distilled)	100.00 c.c.

After standing for one day, the solution is filtered and is ready for use.

SOLUTION 2

Iodin	2 gm.
Potassium iodid	3 gm.
Water (distilled)	300 c.c.

The solution is ready for use as soon as the iodin is entirely dissolved.

TECHNIC OF STAINING

Smears are made on slides or cover glasses and fixed by heat in the usual manner; stained with Solution 1 for one minute; washed with water; dried with good absorbent filter paper; stained with Solution 2 for one minute; washed, and dried with filter paper.

MICROSCOPIC PICTURE

The granules of diphtheria bacilli are stained black; the bars, dark green, and the intermediate portions, a light green. Virtually all other bacteria also take a light green stain. The contrast is marked.

The stain has been very serviceable in detecting diphtheria bacilli.

1. Hutcheson: Progr. Med. 3:226 (Sept.) 1920.
2. Beck, quoted by Sajous, C. E. de M.: Analytical Cyclopedia of Practical Medicine, Ed. 8, Philadelphia, F. A. Davis Company 3:608, 1920.
3. Albert, Henry: A New Stain for Diphtheria Bacilli, J. A. M. A. 74:28 (Jan. 3) 1920.

COMBINED PILLAR RETRACTOR AND TONSIL HOOK

Albin M. Painter, M.D., Kansas City, Mo.

In the construction of this instrument, one arm of a pair of special cross action forceps is made into a pillar retractor, while the other arm is shortened, and has pivoted laterally to its end the tonsil hook, hinged by a movable cross bar, keyed into the center of the pillar retractor. The cross action springs hold the tonsil hook protected within the reverse curve of the pillar retractor. Compression of the handles rotates the hook

Combined pillar retractor and tonsil hook.

outward and backward along the main shaft. The instrument is universal. It can be used around the entire circumference of both tonsils where attached to pillars, and admits of every step of the operation being under direct vision. The hook or retractor can each be used separately as well as conjointly.

1208 Wyandotte Street.

ULCERATIVE COLITIS COMPLICATING TUBERCULOUS MENINGITIS

C. S. James, M.D., Centerville, Iowa, and J. W. Shuman, M.D., Sioux City, Iowa

History.—I. J., a man, aged 19, American, miner, whose father and mother were living and well, who had one sister living, and whose family history was negative as to tuberculosis, cancer and syphilis, was said by the parents never to have been quite right, always being dull and stupid, and to have had asthma for the last three years. The patient became ill, Sept. 8, 1911, with an "asthma-like attack" and pain in the left ear; but no pathologic lesions were found. Five days later his physician found him restless and complaining of pain in the left ear. The temperature was 101 F. He was mentally dull. On consultation, September 16, a diagnosis of mastoiditis was made, and the patient was removed to St. Joseph Mercy Hospital, Centerville, Iowa.

Examination.—On admission the patient's temperature was 101.5; pulse, 120; respiration, 18. He was aroused with difficulty. A polyp filled the deep aural cavity on the left side; there was apparent tenderness of the left mastoid; no bulging of the canal was noted. The Brudzinski and Kernig signs and the Babinski reflex were strongly present.

Lymph glands, lungs, heart, digestive tract and associated viscera were apparently normal. The patient was delirious. The pupils were equal and reacted to light; the eye grounds showed choked disk, most marked in the left.

Blood examination, September 17, revealed: hemoglobin, 80 per cent.; leukocytes, 8,000; differential count: small lymphocytes, 10 per cent.; large lymphocytes, 5 per cent.; large mononuclears and transitionals, 5 per cent.; polymorphonuclears, 80 per cent.; eosinophils and mast cells, 0. Urine examination was negative. The Iowa state laboratory reported the Widal test negative, September 20.

September 21, spinal puncture was made. One ounce of clear fluid under increased pressure was removed; no microorganisms were found.

A diagnosis of tuberculous meningitis secondary to chronic mastoiditis was made.

Clinical Course.—Two days later, there developed bilateral, catarrhal conjunctivitis, and parotitis on the left side. The patient's condition continued to grow worse, and, September 26, he began to have involuntary stools, at first dark brown, but gradually becoming more red until pure blood was noted. The patient died, 1:20 a. m., September 27.

The clinical diagnosis was tuberculous meningitis, complicated with intestinal hemorrhage.

Necropsy.—This was performed, September 27. Permission was given to open only the abdomen. The heart and lungs (removed through the diaphragm) were negative. The abdominal viscera, except the cecum, were negative. The mucosa of the first 10 inches of the ascending colon showed nine ulcerated areas, from 1 to 4 cm. in length and from 0.5 to 1.5 cm. in width. They were situated transversely and extended through the mucous membrane into the muscularis. The edges were not undermined; the base was a dirty bluish red; there was no crusting. Nearly all showed signs of recent hemorrhage. Five lymph glands, the size of a grain of corn, were noted on the mesenteric border of the ascending colon near the ileocecal valve. They contained several gramophil bacilli. The ulcers evidenced nothing microscopically but round cell infiltration.

The diagnosis was: death due to hemorrhage from tuberculous ulcers of the colon.

Special Articles

BIOLOGIC THERAPY *

(Continued from page 179)

XII. RABIES VACCINE

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Rabies vaccine is prepared in a number of different ways from the same basic material, the fixed virus of rabies. It is important to realize that the one fundamental and essential step in the preparation of rabies vaccine has been taken by accomplishing the conversion of the virus of rabies from the condition in which it is found in Nature to the state in which it is known as fixed virus. The subsequent handling apparently is of less importance since, as far as can be judged, equivalent results may be obtained with vaccines prepared by various methods of treating the fixed virus.

Fixed virus may be prepared from the virus as found in Nature (street virus) by serial passage through a large number of relatively nonresistant animals. The rabbit is commonly used. Changes in the properties of the street virus are indicated by a progressively shortening incubation period of the resultant disease, by a tendency to produce the paralytic rather than the violent form of the disease, by a reduction or loss of infectivity when given subcutaneously to relatively resistant animals, and by changes in the appearance of the Negri bodies which are associated with rabies. The virus is spoken of as "fixed" when these changes have ceased to progress, at least with sufficient rapidity to be readily observable. Nominally, this coincides with the period when the incubation period in rabbits, inoculated intracerebrally, has been reduced to seven days; but there is evidence that further changes at a very slow rate of progress do continue beyond this period. In practice, it is the custom for laboratories beginning the production of rabies vaccine to avoid the delay incident to preparing their own fixed virus from street virus, by securing a strain of the former from some other laboratory. In the common parlance of the laboratory, the term "rabies virus" means not only the microorganism causing the disease, but also the tissue in which it is contained as well; and unless otherwise defined, it would be understood to mean the brain or spinal cord of a rabid animal.

TREATMENT FOR ADULT

Day of Treatment	Cord, Dried, Days	Amount of Cord Cm.	Day of Treatment	Cord, Dried, Days	Amount of Cord Cm.
First	6	1	Twelfth	3	0.5
Second	5	1	Thirteenth	3	0.5
Third	4	1	Fourteenth	2	0.5
Fourth	3	0.5	Fifteenth	2	0.5
Fifth	3	0.5	Sixteenth	4	0.5
Sixth	2	0.5	Seventeenth	3	0.5
Seventh	2	0.5	Eighteenth	2	0.5
Eighth	1	0.5	Nineteenth	3	0.5
Ninth	5	0.5	Twentieth	2	0.5
Tenth	4	0.5	Twenty-first	1	0.5
Eleventh	4	0.5			

The further treatment of the fixed virus in order to prepare the vaccine may proceed according to several recognized methods, the intent of which is either to accomplish graduation of the dosage, or to secure a further attenuation of virulence, to preserve against rapid deterioration, or merely to provide the material in a form convenient for use. Of these methods the most commonly employed are: emulsification of the virus and graded dilution in salt solution; reduction of virulence by slow desiccation for definite periods, followed by preservation in glycerin; removal of diffusible substances by dialysis; rapid desiccation in a frozen condition, and treatment by various chemicals, notably by phenol. The advocates of each of these methods can adduce arguments as to the convenience, economy or suitability for some special purpose of the method which they employ; but it is believed that there is no acceptable evidence to show that any one method is preeminently more efficacious in conferring immunity to rabies than others. Some methods have, however, been subjected to more extensive practical application than others.

Whatever the method employed, the final substance to be used for injection consists of a liquid suspension of more or less modified fixed virus; and this is administered in a series of subcutaneous injections, given for a period of time which may vary according to the method used, up to a maximum of three weeks. It has been found possible, and is theoretically advantagious, to modify the schema of injections employed originally by Pasteur in using the virus attenuated by slow desiccation. For example, the plan of injections now employed in the Hygienic Laboratory, U. S. Public Health Service, eliminates the use of long dried and presumably inert material, while retaining roughly Pasteur's idea of administering a succession of courses of injections of increasing virulence. This schema is

* This is the fourth instalment of a series of articles dealing with serums, vaccines and nonspecific therapy.

admittedly arbitrary, and is supported more by the evidence of long usage than by strictly scientific considerations.

Immunization with rabies vaccine is, of course, of the active type, and requires considerable time, and is made possible in its application in practice only by the fact that the incubation period of rabies is relatively extremely long. During this period the immunization must be accomplished. In some instances in which the exposure has been exceptionally severe, the incubation period is destined to be too short to permit the establishment of active immunity, and in these cases the preventive treatment must fail. In other cases, moreover, even though the exposure is not severe beyond the ordinary, the individual seems incapable of responding to the treatment by developing immunity. The counterpart of this condition is seen experimentally in the varying response of rabbits to injections of rabies vaccine, as manifested by the rabicidal property of their serums. It is generally accepted, and there is experimental evidence in support of the belief, that the maximum degree of immunity is not developed until about two weeks after the completion of the treatment.

The exact evaluation of the protection afforded by treatment of persons with rabies vaccine is impossible. In order to accomplish such a valuation, we should have to know, on the one hand, what proportion of persons exposed to infection, and failing to receive protective inoculations, succumbed to rabies; and, on the other hand, the proportion of such deaths among exposed persons who did receive the inoculations. The difficulty lies in securing sufficiently large groups in both the treated and untreated classes in which all the data necessary for statistical comparison are well established. Was the biting animal certainly rabid? Was virus actually introduced into the wound? Were the injuries in the two groups comparable as regards severity and location? These and other questions would require to be answered fully if we were to make an accurate estimate. The trend of the difference between the two groups, treated and untreated, is, however, sufficiently definite. A much greater proportion of untreated exposed persons die from rabies than of the treated, according to the best available figures. There is a mass of experimental data to show that rabies vaccine does accomplish a specific immunizing effect.

The administration of rabies vaccine is not entirely devoid of danger to the recipient. In a very small proportion of those receiving, it, a paralytic condition develops which may fairly be attributed to the treatment per se, or to a combination of this with a peculiar susceptibility of the patient. About one fourth of these cases end fatally, a complete recovery usually occurring in the remainder. Exposure to cold or chilling, fatigue, and the use of alcohol apparently predispose to the development of this condition, but cases are seen in which none of these factors have been operative. Other objectionable results of the treatment amount only to minor discomforts and inconveniences.

Rabies vaccine, prepared by various procedures, is now available throughout all portions of the United States to the extent that it may fairly be said that no exposed person need die of rabies for lack of injections. Many state boards of health are prepared to furnish it free of cost to the indigent, and the cost of the commercial preparations is not prohibitive except to the destitute, for whom other provisions could probably be made in almost every instance.

XIII. PERTUSSIS VACCINE

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BALTIMORE

The announcement by Bordet and Gengou in 1906 of their hemoglobinophilic bacillus as the etiologic agent of pertussis stimulated the search for a prophylactic and curative vaccine or serum for this disease. Some authorities still maintain, however, that a filtrable virus may be the real cause, and the presence of the Bordet-Gengou bacillus merely a coincidence, and that Koch's postulates have not been satisfactorily fulfilled. On the other hand, the Bordet-Gengou bacillus can be isolated from the sputum in practically all cases during the first two weeks of the disease, and complement fixation for it has been demonstrated in pertussis patients by several investigators. Others, however, are unable to confirm this.

Bordet himself had inconclusive results from the therapeutic use of antiendotoxic serum in whooping-cough, yet many observers have reported favorable results for the curative and prophylactic use of pertussis vaccines. Some of these reports have been written by physicians whose clinical judgment is reliable; but, unfortunately, many more have been deductions from insufficient and uncontrolled material that has been inaccurately analyzed. The more careful studies show that pertussis vaccine has practically no therapeutic value. In some cases it has been noted that the number and severity of the paroxysms have been reduced, but the course and duration of the disease have been essentially unchanged. Nonspecific therapy, such as injections of *Bacillus influenzae* vaccines, the sterile ether extract of sputum of whooping-cough patients, sugar solutions, or even a change of air will bring about quite similar results.

The natural immunity of many children to pertussis makes accurate conclusions in regard to the value of prophylactic vaccine exceedingly difficult. Many of the unvaccinated, when exposed to the disease, fail to acquire it, while a number of those inoculated succumb. Many enthusiastic reports have been published, but in most of these but few unvaccinated controls were observed.

In a series of experiments that had adequate controls, negative results were obtained for vaccines used during the course of the disease, and but doubtful immunization from prophylactic inoculations.

In summing up the prolific and somewhat contradictory literature on this subject, it may be concluded that injections of Bordet-Gengou bacillus vaccines may have a slight though unreliable prophylactic effect, and that therapeutic inoculations are of practically no value. Further experiments are necessary to raise this procedure from the limbo of nonspecific therapy.

DOSAGE

The earlier investigators used comparatively small doses of vaccine; but if beneficial results are to be

expected at all, the following dosage may be tried. This procedure has been used in a large number of cases, and no ill effects have been noted.

The vaccines were made according to the usual Wright technic and rendered sterile by heating to from 58 to 60 C. for an hour. They should be used within four months of the date of manufacture.

1. *For Prophylactic Use.*—Three injections, one weekly, for three weeks. For children, 500, 1,000 and 2,000 million bacilli. For adults, 1,000, 2,000 and 3,000 million bacilli.

Although the opinion has been expressed that the vaccine is worthless for therapeutic purposes, if it is desired to try it the following dosage may be employed:

2. *For Curative Purposes.*—To a child over a year old, an initial subcutaneous injection of 500 million bacilli is given; at the end of forty-eight hours another dose containing 1 billion is administered, and after the lapse of another forty-eight hours a third dose of 2 billion.

After an interval of five days the child is examined again. If the paroxysms are much milder but still persist, a dose of 4 billion bacilli is given, followed by 8 billion in three days and 10 billion after another lapse of three days.

Should the paroxysms become more violent after the first three injections, a week should be allowed to elapse before the second series of three injections is given, and instead of 4 billion this series is started with only 2 billion.

XIV. CHOLERA VACCINE *

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Cholera vaccine was the first of the bacterial vaccines used on a large scale with the idea of preventing a specific disease in human beings. Ferran, during a severe cholera epidemic in Spain in 1885-1886, administered living cholera spirilla subcutaneously to about 40,000 persons without obtaining convincing evidence of protection. In 1894-1895, Haffkine, using more accurate methods, vaccinated about the same number of persons in India, and his statistics of the incidence of and mortality from cholera among the inoculated and uninoculated indicated a certain degree of protection in the former. He injected subcutaneously first a living, attenuated culture of *Spirillum cholerae*, and, one week later, a living culture of the same organism whose virulence for experimental animals was maintained at a high degree. The experiments of Ferran and Haffkine were of fundamental importance in that they furnished the basis on which was built the prophylactic immunization against bubonic plague and typhoid fever.

Since Haffkine's time a number of different methods of preparing cholera vaccine have been recommended. As different epidemics of cholera vary enormously in both virulence and duration, it is obviously very difficult to compare the protective value of one vaccine with that of another employed during a different epidemic; hence it would seem logical to regard the vaccine most generally used as a standard and to use this in the same epidemic as a measure of any new vaccine whose merits are to be determined. It would seem inadvisable to recommend any cholera vaccine for general use until such parallel tests have been carried out under satisfactory conditions. The standard cholera vaccine at the present time would consist of a culture of *Spirillum cholerae* grown on nutrient agar, suspended in physiologic sodium chlorid solution, and killed by heating one hour at 53 C. The vaccine made at the government laboratory in Bombay contains 8,000 million organisms per cubic centimeter; 0.5 c.c. is administered subcutaneously at the first dose, and 1 c.c. as the second dose. It is being issued in increasing amounts in India year by year, and the few reports that are published are distinctly favorable. The local and general reactions are mild. The contraindications to its use are those that have been described for the typhoid vaccine.

During the World War, several millions of men in the Austrian and German armies were given cholera vaccine (cultures killed by heat), and thousands of them, particularly the Austrians, spent months in districts where cholera was prevalent. It was considered that the relatively small amount of cholera in these armies was due in large measure to the vaccinations; and the appearance of a much higher percentage of cases in certain groups of Austrian soldiers that had not been inoculated lent additional evidence to this view.

It may be considered, then, that the administration or two (or three) suitable doses of cholera vaccine offers a marked degree of protection against cholera during the three months following vaccination, and perhaps some protection for six months or longer. This protection is not absolute: some of the vaccinated contract cholera. It is asserted by a number of observers that cholera in the vaccinated runs a milder course than in the uninoculated, but further evidence seems necessary to establish this. Cholera carriers have been inoculated without untoward effect; but the duration of the carrier state is apparently not shortened thereby.

On account of the acute onset and rapid course of the disease, one would not expect any benefit from the treatment of cholera with cholera vaccine.

XV. VACCINATION AGAINST PLAGUE

OSCAR TEAGUE, M.D.
NEW YORK

Antiplague inoculation was introduced in India by Haffkine in 1897. He used broth cultures, grown for six weeks at room temperature and heated a half hour at 65 C., to which was added 0.5 per cent. phenol (carbolic acid). The requisite dose was given subcutaneously. A single inoculation was usually administered—occasionally, two. The reaction, both local and general, was much severer than one is accustomed to see at present from typhoid inoculations. In 1908, after an enormous number of antiplague inoculations had been performed in districts where plague was prevalent, Haffkine concluded from a study of the available statistics that inoculation reduces the liability to attack to less than one third of what it is in the uninoculated, and that the recovery rate in the inoculated is at least double that in the uninoculated.

* From the Department of Bacteriology, Columbia University College of Physicians and Surgeons.

Bubonic plague can be readily reproduced in laboratory animals, and prophylactic inoculations in these animals with subsequent infection with virulent plague bacilli have demonstrated that a vaccine made from twenty-four hour old agar cultures, suspended in saline solution and heated an hour at 65 C., calls forth a more effective resistance against plague than does the Haffkine vaccine, and that a still greater degree of resistance is produced by the inoculation of a large dose of living plague bacilli from a culture whose virulence had been greatly reduced by artificial means. The killed agar cultures have been used for the immunization of human beings during plague epidemics, but have not displaced the Haffkine vaccine; the avirulent living culture has not been as yet subjected to this practical test.

The Bombay bacteriologic laboratory prepares all the antiplague vaccine that is used in India, and receives statistics of the incidence of plague in the inoculated and uninoculated. In the report for the year 1911, during which year 1,211,170 doses of the vaccine were distributed, Major Glen Liston, the director of the laboratory, reviews the evidence as to the value of the inoculations, after having eliminated certain obvious sources of error in the statistics.

There is a rather close agreement between these figures and the earlier ones of Haffkine. Thus there appears to be no doubt that antiplague inoculation is an important factor in diminishing the morbidity rate and the death rate during an epidemic of plague.

About 10,000,000 persons have died of plague in India during the last twenty years. Inoculation has encountered great opposition. If the natives had submitted willingly and freely to inoculation, hundreds of thousands would undoubtedly have been saved. However, even if inoculation had been carried out on a vast scale and the death rate had been reduced to a small fraction of what it has been, still plague in the rats would have been unaffected, and the cessation of inoculation would have brought about in two or three years the same high mortality in human beings as before. Prophylactic inoculations diminish the incidence of plague in human beings and lower the percentage of mortality in those that contract plague in spite of inoculation, but they do not serve as a factor in eradicating plague permanently from a district or country.

COMPARATIVE MORBIDITY AND MORTALITY FROM PLAGUE AMONG INOCULATED AND UNINOCULATED

Inoculated					Not Inoculated				
Population	Attacks	Deaths	Incidence, per 1,000	Case Mortality, Per Cent.	Population	Attacks	Deaths	Incidence, per 1,000	Case Mortality, Per Cent.
118,149	941	371	7.96	39.5	321,821	11,041	8,695	34.4	78.6

The foregoing remarks apply only to bubonic plague. Pneumonic plague, though caused by the same organism, is clinically and epidemiologically an entirely different disease. It has not been shown that prophylactic inoculations cause a decrease in either the incidence or the mortality of pneumonic plague.

XVI. THE USE OF VACCINES IN THE PREVENTION AND TREATMENT OF INFLUENZA AND ITS SEQUELS

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It was natural from the beginning of the present pandemic of influenza that, with the apparent assurance that Pfeiffer's bacillus was the veritable cause of the disease, attempts should be made to produce an active protective immunity against this micro-organism. With a growing conviction that no very extraordinary results were being attained, and with the discovery of other bacteria both in the complicated and in the uncomplicated cases, it was likewise reasonable that a mixed vaccine containing the most representative bacteria should be tried. We may now discuss the data that have accrued from these attempts, and try to evaluate them.

A great deal of writing has been done on this subject, but much, perhaps the greater part of it, is of little or no value as evidence from which to draw conclusions. This doubtful mass of literature ranges all the way from opinions through clinical impressions to well arranged statistical material drawn from careful observation. The latter data themselves are again of unequal value; some of them represent results checked by only one or more of the essential controls, whereas others, a very few, fulfil the criteria of rigid experimentation. The discussion may be clarified by outlining what I myself should regard as complete data from which conclusions as to the value of preventive vaccination should be drawn; they are those recommended by the Special Committee of the American Public Health Association.[1] These recommendations prescribe that the groups of vaccinated and unvaccinated individuals should be essentially the same in number; that the relative susceptibilities of the two groups as regards age and sex, exposure to infection and attacks of the disease should be the same; that the degree of exposure after vaccination should be of the same duration and intensity for each group, and finally that the groups should be exposed concurrently during the same period of the epidemic curve. It is realized that very seldom will the data offered fulfil all these prerequisites.

Two main types of vaccine have been employed in the prevention of influenza: first of all, a vaccine composed of influenza bacilli most of them comprising numerous strains, and secondly, a mixed vaccine containing the organisms most frequently found in fatal cases of influenza, that is to say, in addition to the influenza bacillus, pneumococci, streptococci, staphylococci, and at times certain other organisms. We must consider our results first in relation to the types of vaccine employed, and again in respect to the effect of these vaccines, on the one hand in preventing influenza, and on the other hand in preventing its complications.

The vaccine composed of influenza bacilli alone has been found by a few observers apparently to exert beneficial effects in preventing the incidence of the

1. Special Committee of American Public Health Association (W. A. Evans, D. R. Armstrong, W. H. Davis, E. W. Kopf and W. C. Woodward): Influenza, J. A. M. A. 71: 2068 (Dec. 21) 1918.

disease, notably by Duval and Harris[2] and by Wallace.[3] Other observers with perhaps even more carefully controlled experiments, such as McCoy, Murray and Teeter,[4] and Wadsworth,[5] attribute not the slightest preventive action to this vaccine.

When we come to consider the use of mixed vaccines, we find at once more valuable and more enthusiastic reports as regards their preventive value. A whole series of observers—Rosenow,[6] Cadham,[7] Eyre and Low,[8] Kraus and Kantor,[9] Cary,[10] and Minaker and Irvine[11]—have apparently demonstrated a distinctly diminished incidence of influenza in the vaccinated as compared with the unvaccinated, and the particular writers to whom I have referred have for the most part carefully controlled their cases by a group of unvaccinated individuals. But it is not so certain in every instance that they have fulfilled the other requirements already outlined. McCoy, on the other hand, finds no beneficial effects from the use of a mixed vaccine in prevention.

Mixed vaccines have been used, not only preceding exposure to influenza, but also during the course of the disease in the hope of preventing its complications. There is a steadily growing body of information, some of it of apparently considerable critical value, that would seem to indicate that a mixed vaccine containing streptococcus and pneumococcus in addition to influenza bacilli will notably decrease the pneumonic complications of influenza. Among the observers that may be mentioned are Kitano,[12] Armitage,[13] Dever, Boles and Case,[14] Bezançon and Legroux,[15] and Cadham.[16]

Cary,[10] and Roberts and Cary,[17] have not only prevented the occurrence of pneumonia by the use of a mixed vaccine, but have actually produced a rapid cure of pneumonia during its course, particularly when the vaccine is administered intravenously. The striking results that they claim for this treatment they properly attribute to a nonspecific protein reaction, such as has been obtained by other observers in typhoid fever and acute rheumatism. The nonspecific nature of the result is rendered more certain by similar beneficial effects produced by Cowie and Beaven,[18] who used a typhoid protein in place of the mixed influenza vaccine with equally good effect.

(Series to be continued next week)

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3. Wallace, G. L.: Report of Influenza Epidemic and Experience in the Use of Influenza Vaccine "B" at Wrentham State School, Wrentham, Mass., Boston M. & S. J. **180**: 447 (April 17) 1919.

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7. Cadham, F. T.: The Use of a Vaccine in the Recent Epidemic of Influenza, Lancet **1**: 885 (May 24) 1919.

8. Eyre, J. W. H., and Low, E. C.: Report upon the Autumn Influenza Epidemic (1918) as It Affected the N. Z. E. F. in the United Kingdom, Lancet **1**: 553 (April 5) 1919.

9. Kraus, R., and Kantor, L.: Vaccine Treatment of Influenza, Rev. d. Inst. Bacteriol., Buenos Aires **2**: 59, 1919.

10. Cary, E. G.: Experience with Vaccine in an Influenza Epidemic, Proc. New York Path. Soc. N. S. **18**: 90, 1918.

11. Minaker, A. J., and Irvine, R. S.: Prophylactic Use of Mixed Vaccine Against Pandemic Influenza and Its Complications, J. A. M. A. **72**: 847 (March 22) 1919.

12. Kitano, T.: Prophylactic Inoculation and Vaccine Treatment of Influenza, Japan M. World, April 20, 1919.

13. Armitage, F. L.: Note on "Influenza" and Pneumonia, Brit. M. J. **1**: 272 (March 8) 1919.

14. Dever, F. J.; Boles, R. S., and Case, E. A.: Influenza at the U. S. Naval Hospital, League Island, Pa., J. A. M. A. **72**: 265 (Jan. 25) 1919.

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18. Cowie, D. M., and Beaven, P. W.: Nonspecific Protein Therapy in Influenzal Pneumonia, J. A. M. A. **72**: 1117 (April 19) 1919.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

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BENZYL BENZOATE-H. W. and D. (See New and Nonofficial Remedies, 1920, p. 49).

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Globules of Benzyl Benzoate-H. W. and D.—Each globule (gelatin capsule) contains Benzyl Benzoate-H. W. and D., 5 minims, diluted with olive oil.

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SATURDAY, JANUARY 22, 1921

TUBERCULOSIS IN PRIMITIVE TRIBES, AND ITS BEARING ON THE TUBERCULOSIS OF CIVILIZED COMMUNITIES

The unexampled intermingling of the peoples of nearly all the world during the war, under conditions permitting of more or less close medical observation, gave many opportunities for study of the differences in reaction of different races and nationalities to common influences. Oftentimes such comparisons throw important light on medical problems, just as knowledge concerning human pathology has been obtained from comparative pathology, and as medical missionaries and others working among the less-known populations have furnished many important contributions through their observations on the behavior of disease under new conditions or modified by environment, habit or other factors. An illuminating article on tuberculosis by Cummins [1] of the Royal Army Medical College is in large part inspired by the studies that were made on the incidence and character of tuberculosis as it appeared among the many different races and nationalities engaged in the campaign on the western front. Although these records are as yet far from being completely analyzed, they serve to illustrate in a striking manner the fact that individuals from countries in which tuberculosis is rare exhibit, when exposed to infection, a susceptibility incomparably greater than that of the inhabitants of countries in which the disease has long been widely prevalent. Thus, in a given period, among one and one-half million British troops, there were 2,881 cases and 165 deaths from tuberculosis, while in a group of Cape Boys and Kaffirs in the South African Labor Corps, numbering only 11,000, there were 327 cases and 182 deaths. Both groups had been inspected for tuberculosis before going to France, and hence had developed or first manifested it while there. Likewise the Indian division showed a tuberculosis incidence of 27.4, as compared with 1.1 per thousand among British troops. The Fijian labor unit had to be repatriated on account of the prevalence of tuberculosis. Among the French there was a similar demonstration of the susceptibility of those who previously had not been exposed to tuberculosis. Borrel found that among the Senegalese arriving in France only 4 or 5 per cent. gave a positive cutaneous reaction, indicating that they, like other African natives, are but little infected with tuberculosis in their home environment, and thus constitute a virgin soil for infection. Among these French African troops the mortality from tuberculosis was extremely high, having been 11.14 in 1918.

Of especial importance is the extremely high proportion of mortality to incidence among these Africans, which coincides with the prevalent view that tuberculosis is more virulent and rapid when infecting previously unexposed victims. On such a soil there is an absence of fibrotic reaction, a tendency to rapid generalization, and a speedy course toward a fatal termination. Borrel comments on the fact that the postmortem findings on the tuberculous Senegalese disclosed a type of lesion comparable to that of the infant, the guinea-pig or the monkey in extensive generalization as miliary and nodular caseous tubercles, with little or no tendency to any predominant involvement of the lungs with ulcerative lesions. In America those who have had opportunity to examine the bodies of many negroes are familiar with this picture. While it is probably true that among white and colored persons in tuberculosis hospitals there is no great difference in the character of the lesions, as a recent writer has stated,[2] such observations have no bearing on the point at issue. The patients in tuberculosis hospitals are mostly there because they exhibit clinical evidences of ulcerative pulmonary tuberculosis, and hence present the usual anatomic lesions on which such clinical manifestations depend. The cases of acute generalized tuberculosis, however, seldom present clinical features that lead to admission to hospitals for consumptives, and they come to necropsy among the patients of general hospitals, under all possible clinical diagnoses. Such cases of acute generalization of the disease are especially likely to be found among negroes, particularly those who have migrated from an isolated life on southern plantations to the tuberculosis infested environment of the cities. Negroes who have been exposed to the same opportunities for infection as white persons probably resemble them more closely in the character of their tuberculosis.

All these observations add support to the prevalent view that the character of adult tuberculosis depends largely on childhood tuberculosis, as illustrated especially well by the work of Opie, recently reviewed in these columns.[3] The first infection, at whatever time of life, tends to be a nodular caseating lesion, with involvement of the regional lymph glands. Whether fatal extension will or will not occur seems to depend on a balancing of the factors of size of dose, virulence

1. Cummins, S. L.: Internat. J. Pub. Health 1:137 (Sept.) 1920.

2. Rogers, J. B.: A Comparison of Gross Tuberculous Lesions Among Whites and Negroes, Am. Rev. Tuberc. 4:669 (Nov.) 1920.

3. The Route and Results of Our First Infection with Tuberculosis, editorial, J. A. M. A. 75:1718 (Dec. 18) 1920.

of the organism, local and general resistance of the host, and perhaps in large measure on the mere chance as to whether or not the first lesions happen to be located in a site favorable to generalization through proximity to blood and lymph vessels. It seems to make little difference in clinical behavior and pathologic character whether the first infection occurs in infancy or later in life. Chronic ulcerative pulmonary tuberculosis, on the other hand, is tuberculosis in a host possessing a certain degree of resistance by virtue of partial immunization through previous infection.

As Cummins suggests, the facts brought out in a study of racial distribution of tuberculosis are entirely opposed to the theory that heredity plays an important part in predisposing to tuberculosis. In communities in which tuberculosis is rare, the members should not be susceptible to tuberculosis when coming in contact with tuberculous communities if susceptibility depends on inheritance, yet the opposite is true. Likewise, if an inherited tuberculous diathesis plays a part, the disease should be least severe among people whose ancestors have not had tuberculosis, which is quite the reverse from the facts. The essential importance of geographic, meteorologic and geologic factors is also difficult to discern in a disease which, once introduced, seems capable of flourishing wherever man exists, for the dark skinned people succumb to tuberculosis when it is introduced into their native communities, as well as when they are exposed to it in the less genial climate of France and Belgium. A consideration of tuberculosis as depending on the factors of opportunity for infection, recovery from infection with partial or complete immunization, persistence for long periods of latent but still infectious lesions, and variations in local and general resistance, seems to explain the problems of this disease in a satisfactory manner, and to minimize the importance of heredity and geography, without, of course, eliminating them as completely negligible.

THE PROTEINS AS COLLOIDS

With the development of the newer colloid chemistry has come the attempt to explain many physiologic phenomena in terms of its hypotheses. The proteins and complex polysaccharids, like glycogen and dextrins, and presumably also enzymes and most of the essential constituents of cells, are organic colloids; hence, as more than one writer has contended, the properties of living cells are to be regarded as largely dependent on the properties of colloids. To many the significance of protoplasm is in no small measure bound up with the behavior of colloids, foremost among which are the proteins.

In an illuminating address delivered before the Harvey Society in New York, Jacques Loeb [1] of the Rockefeller Institute for Medical Research has pointed out that in harmony with recent concepts of colloid chemistry there has been a widespread adoption of the idea that the reactions between colloids and other bodies are not determined by the purely chemical forces of primary or secondary valence, but follow the rules of "adsorption." The latter word has become an expression sufficiently indefinite and all embracing to conjure with. There has been considerable apparent justification, it must be admitted, for referring the behavior of substances in suspension to surface forces at the boundary of the liquid and the solid. Such reactions may differ from the ordinary chemical unions such as occur in true solutions, in that the two combining substances do not unite in definite proportions, the amount of substance adsorbed being more or less proportional to the amount of surface involved. Comparable phenomena have been ascribed to so-called colloidal solutions of proteins and protein gels.

What are the distinctive properties of the colloids, those nondiffusible substances which function as "true organizers of the cell's activities"? Mathews [2] has recently ascribed them to the large size of the particles which are dispersed. Owing to this, he asserts, surface tension phenomena between solute and solvent come into play at the boundaries of the particles, and these phenomena, which are lacking in ordinary solutions, give to colloid solutions properties which ordinary solutions lack. The interplay of toxins and antitoxins, as well as other immunologic reactions, are among those which have been explained by the hypothesis of adsorption relations between the reacting substances. By some investigators the combinations observed in serologic "neutralization" of toxin with antitoxin have been compared to the chemical reaction between strong acids and bases; others have failed to find the expected definite proportionalities in such phenomena and have consequently assumed that they depend on colloidal reactions of the adsorption type. The studies of Bordet, for example, have been concerned with the latter.

Although many writers have admitted that probably the majority of adsorption compounds are in reality chemical unions, the behavior of proteins in the presence of various ions has continued to be interpreted in terms of adsorption. Loeb's latest studies make evident, however, that the confusion heretofore existing on this subject is largely dispelled when comparisons are made under definite conditions of hydrogen-ion concentration. Acids, alkalis and neutral salts combine with proteins by the same chemical forces of primary valence by which they combine with crystalloids, and, moreover, the influence of the different ions on the physical properties of proteins can be predicted from the general combining ratios of these ions. Expressed somewhat more familiarly, the forces by which gelatin and egg albumin (and probably proteins in general)

1 Loeb, Jacques: The Proteins and Colloid Chemistry, Science 52: 449 (Nov. 12) 1920. The experiments on which the address was based have appeared in the Journal of General Physiology 1: 39, 237, 363, 483, 559, 1918-1919; 2: 87, 1919-1920; 3: 85, 1920-1921.

2. Mathews, A. P.: Physiological Chemistry, New York, William Wood & Co., 1920, p. 215.

combine with acids or alkalis are the purely chemical forces of primary valence. Each protein has a definite iso-electric point; when the hydrogen-ion concentration of the environment is altered the protein may combine in definite proportions either with acid or with the basic ions, depending on the conditions that prevail. This is in harmony with traditional ideas of chemistry. As Loeb summarizes his results: The behavior of the proteins therefore contradicts the idea that the chemistry of colloids differs from the chemistry of crystalloids. To many students this conclusion will bring much mental relief and satisfaction; for it replaces the vague doctrines of the colloids by the more definite conceptions of chemical reactiop—even for the fundamental organic basis of protoplasm.

HOW DO AROMATIC CARMINATIVES AFFECT THE ORGANISM?

Carminatives still enter widely into the everyday life of the nation. Their variety is legion. Ginger, peppermint and anise have not lost their household popularity as anticolics. Public places reek with the odor of spearmint, cloves and cinnamon, thus attesting to the use, if not even the abuse, of a variety of volatile oils. The "Pharmacology of Useful Drugs," published by the American Medical Association,[1] states that the aromatic carminatives increase gastro-intestinal peristalsis and serve to hasten the passage of gas through the stomach and bowel. They induce hyperemia of the gastro-intestinal mucous membranes and probably increase the appetite and digestion. Nevertheless, pharmacologists are by no means agreed on this interpretation of the effect of the carminatives. Their supposed antiseptic action in certain cases is not easy of demonstration with respect to intestinal processes. The peculiar and undoubted psychic effect of flavors and odors on secretion in the alimentary tract is not easily capable of critical analysis and interpretation. The alleged action on the gastro-intestinal musculature is more readily subjected to the test of direct experiment; and in respect to the consequences, the investigators seem to disagree. Thus, in contrast to the opinion of Hatcher and Wilbert just quoted, it has been asserted that the volatile carminative oils produce relaxation of the gastric and intestinal musculature and thereby allow more ready escape or onward progression of gases and alimentary contents.

New evidence contributory to the subject has been presented by Plant[2] from the Department of Pharmacology at the University of Pennsylvania School of Medicine. His studies have the advantage of having been performed under conditions not complicated, as many experiments are, by the use of anesthetics or operative procedures. The carminatives—volatile oils —were applied in doses of therapeutic significance locally to the mucous membranes of surgically isolated intestinal loops of dogs, and the peristaltic movements were then recorded. In this way a number of illustrative compounds were demonstrated to increase the muscular activities of the intestine by an augmentation of tonus and of rhythmic contractions. Occasionally the movements were followed by relaxed conditions. These effects of the volatile oils can be lessened but not abolished by atropin; they fail, however, when the sensory nerve endings of the mucosa are paralyzed by cocain.

A large number of the more familiar carminative volatile oils produce this type of muscular effect. Plant's observations have led him to classify these carminatives into two groups, which merge, more or less, into each other, as might be expected. The more potent representatives include the volatile oils of mustard, cinnamon, peppermint, cloves, nutmeg, spearmint, juniper and lavender, as well as menthol and camphor. In the weaker group the oils of anise, cardamom, fennel, orange and caraway are found. Such studies mark the beginnings of a more intelligent appreciation of the true physiologic behavior of a large group of popular but ill defined substances which enter, in minute quantities at least, widely into everyday life as well as to a less extent, into current therapy, particularly of the popular and traditional household variety.

1. Hatcher, R. A., and Wilbert, M. I.: The Pharmacology of Useful Drugs, Chicago, American Medical Association, 1915, p. 431.
2. Plant, O. H.: The Effect of Carminative Volatile Oils on the Muscular Movements of the Intestine, J. Pharmacol. & Exper. Therap. 16: 331 (Nov.) 1920.

Current Comment

ESTERS OF CHAULMOOGRA OIL IN LEPROSY

The promise of usefulness in the treatment of leprosy by chaulmoogra oil and its derivatives, to which editorial reference has frequently been made in THE JOURNAL, needs to be subjected to the same rigorous review that all new and seemingly valuable therapeutic procedures demand. Any one who has heard the claims of almost any of the widely heralded "specifics" which experimental therapy, whether modern or ancient, has proposed for the mitigation or eradication of definite diseases, and who has followed the subsequent experiences derived from the use of the highly praised drugs, will have experienced many disappointments. The admonition to "stop, look and listen" ought to be changed to "wait and see" in all such instances. That the administration of chaulmoogra oil is likely to be of benefit in leprosy seems now to be admitted without much debate. A conservative statement of government experts frankly asserts that it "is helpful to many cases of leprosy, perhaps the majority."[1] The newer recommendation of the ethyl esters of the fatty acids from the oil first employed by Hollman and Dean[2] deserves a sympathetic hearing. It is too early to give a final verdict; nevertheless, it seems desirable to record the encouraging indications which conservative investigators have reported under

1. McCoy, G. W., and Hollman, H. T.: Bull. 75, U. S. P. H. S., January, 1916.
2. Hollman, H. T., and Dean, A. L.: J. Cutan. Dis. 37: 367 (June) 1919.

conditions in which critical examination and rigorous control are possible. At the Kalihi Leprosy Hospital, conducted by the Territorial Board of Health of the Hawaiian Islands, the standard treatment of the patients, usually more than a hundred in number, consists in the use of the ethyl esters carrying 2 per cent. of iodin in chemical combination. This is given by intramuscular injection, supplemented by the oral administration of the mixed fatty acids of chaulmoogra oil, likewise containing iodin in organic combination. Other hygienic therapy is, of course, not neglected. The medical superintendent, Dr. Wayson, reports that in the period from Dec. 24, 1918, to July 20, 1920, seventy-eight patients have been paroled from segregation and there has not been a single recurrence. Among the hospital patients, more than 10 per cent. have had one or more attacks of leprosy fever with macular eruption, but they soon recover from these acute attacks and are in better condition than before. This is an encouraging story.

WIFE ALLOWED DAMAGES AGAINST HUSBAND FOR INFECTING HER WITH VENEREAL DISEASE

In our medicolegal department this week appears an abstract [1] of a decision of the Supreme Court of North Carolina which recently affirmed a judgment of a lower court, allowing damages of $10,000 to a wife against her husband who had infected her with venereal disease. This decision is of importance from the standpoint of public health as well as from a legal standpoint. Legally, it sets aside the old belief that the husband and wife are one, he being that one, and that she has no recourse against him for any acts performed outside the law. Primitive conditions making the wife a chattel have passed. Today the woman is equally a citizen with her husband. As already established by court decisions, a husband is liable if he assaults or slanders his wife. It is a credit to the enlightenment of the Supreme Court of North Carolina that it should see that the communication of a venereal disease is a greater injury than the breaking of an arm or other physical damage.

HARMFUL MEDICAL ADVERTISEMENTS

Quackery is one of those by-products of human nature and psychology that thrives in all climes and has persisted in some form or other throughout the passing years. Unfortunately, it is not confined to the inerudite or the so-called lower strata of society. Deception makes its gains among all manner of persons. THE JOURNAL has repeatedly pointed out the insidious ways in which the use of nostrums is perpetuated and even facilitated by the medical profession. Sometimes this occurs unwittingly; not infrequently, a defensible excuse cannot be offered. Least of all is there justification for those inaccuracies and improprieties of statement with which medical publications, supposedly intended to lead rather than mislead the profession, all too often deceive their readers. The questionable statements of a chance contributor cannot always be verified or controverted. A well conducted journal must remain an open forum for the discussion of debatable questions in science. Fraud thus meets its antagonists under conditions in which error can be condemned and the truth may prevail. But the advertising columns are like a closed book. They are all too often protected by pay. In any event, custom has rendered them free from easy attack. As a particularly blatant illustration of the harm that can come from present day tolerance of low standards in such forms of publicity, a recent advertisement on the front page of a widely read foreign contemporary—the *Berliner klinische Wochenschrift*—may be cited. In bold type it urges the abandonment of cod liver oil in the treatment of rickets and other nutritive disorders of infancy and childhood, and urges the substitution of a natural mineral water (containing arsenic) in the management of the conditions specified. Cod liver oil has won an almost indispensable place for itself in the therapy of rickets. The high esteem in which it has been held in this respect as the result of years of empiric experience is finding its justification in the current researches on nutrition. The advice given in the advertisement cited is not merely a parody on scientific investigation: it is an insult to the intelligence of the medical profession at present.

EPIDEMIC HICCUP

Europe, and now this country, seems to be passing through what appears to be an epidemic of hiccup. This disturbance is usually the subject of humor rather than of medical concern, and it is seldom given the serious attention which it probably merits. Pathologically it seems to be associated with irritation of the phrenic nerve, from gastro-intestinal disturbance, from neuroses, or from remote disturbances of the central nervous system not as yet determined. The irritation may be of peripheral or central origin. In pneumonia or typhoid fever, hiccup, perhaps due primarily to the effects of bacterial toxins, may be a serious complicating factor, even causing death. Unless hiccup persists for an undue length of time, preventing the patient from securing rest or from continuing his ordinary occupation, it attracts little notice. However, in the epidemic through which we now seem to be passing, many cases have occurred in which patients hiccuped as frequently as every three or four seconds for periods of a week or longer. Lhermitte [1] points out that the first appearance of the epidemic of which he knows occurred in Vienna in the winter of 1919-1920, and was reported by Economo. Large numbers of persons were suddenly attacked with uncontrollable and almost incessant hiccup rebellious to all treatment. In most instances the disturbance ceased spontaneously in a few days, although in one case the hiccup persisted for a month, the patient having only a few hours of rest each day. The hiccup seems to have been associated with the outbreak of epidemic encephalitis, and it is Lhermitte's belief that the association of such epidemics with epidemics of lethargic encephalitis indicates a causal connection. He states that five well-known French clinicians, including Netter, are in accord with this belief. Although epidemics of hiccup

1. This issue, p. 265.

1. Lhermitte, J.: Le hoquet épidémique: Forme singulteuse de l'encéphalite épidémique, Presse méd. 28:916 (Dec. 18) 1920.

have been reported for centuries, there is no specific or even effective treatment. Two methods of treatment have been suggested, the first attempting to reduce the hyperexcitability of the medulla, the spinal cord and the phrenic nerve through the use of sedative and narcotic drugs, and the second attempting to exert and inhibitive influence by physical measures on the nerve centers in reflex erethism. The number of these physical measures is legion. They include pressure on the spine (Nothnagel, Réthy), compression of the arms (Piretti), pressure on the ulnar nerve (Pauzot), pressure on the eyeballs (Sicard and Paraf), influencing the diaphragm by forcible flexion of the legs (Jödicke) or by an apparatus (Boyer, Rostan), distention of the esophagus by swallowing a chunk of bread or something similar (Sicard and Paraf), distention of the stomach (Kanngiesser), ice-bag to the stomach region (Eloy), direct compression of the phrenic nerve against the scalenus muscle (Leloir, Grognot), faradization of phrenic nerves (Dumontpallier) and traction on the tongue (P. Lépine). All of these measures have failed in some cases, and their chief recommendation is that sometimes they seem to be effective and that in general they are harmless. The significant fact brought out is that there may be a relationship between epidemics of encephalitis and of hiccup. This point merits more thorough investigation.

ON SELECTION OF MEDICAL READING

From the weary phrase of Ecclesiastes, "Of making many books there is no end," to Bacon's sage counsel that "reading maketh a full man," authorities have varied as to how much and what the student, the business man, the physician or the ordinary citizen should read. One should naturally hesitate to cast aside Shakespeare for the modern comic opera librettist, Longfellow for the current newspaper rhymester, or Osler for some other textbook on the practice of medicine. Not that the latter have little value but that the former have great value. Here is the gist of the matter as expressed by Bacon:

> Some books are to be Tasted, Others to be Swallowed, and Some Few to be Chewed and Digested; that is, Bookes are to be read only in Parts: Others to be read but not Curiously; and some Few are to be read wholly, and with Diligence and Attention. Some Bookes also may be read by Deputy, and Extracts made of them by Others. But that would be only in the lesse important Arguments, and the Meaner Sort of Bookes: else distilled Bookes are like Common distilled Waters, Flashy Things.

Quiller-Couch argues that it is starkly impossible to keep pace with all of the books that are being written. "About what is impossible," he says, "one does not argue. We must select. Selection implies skilful practice; skilful practice is only another term for Art." The fundamental basis of this art is a knowledge of the factors to be utilized in determining whether or not to buy a certain book. First, Who is the author? What is his character and scientific standing? What are the sources of his scientific and clinical data? Is he well known as an authority on the subject he discusses? Does he enjoy a reputation for painstaking methods? A knowledge of the personality and qualifications of the author is especially necessary properly to evaluate a scientific book. Second, as to the book itself: Is it merely a compilation prepared by an assistant and stamped with the author's name, or is it a reflection of the author's own work, his personality and opinion? Third, Are the data used obtained from recognized hospitals, clinics and research institutions or from the author's private experience? Is the evidence acceptable evidence? Fourth, What of the style? Does the author write carelessly? Are his sentences grammatical? Is the arrangement logical? Is his discussion diffuse or has he concentrated the material to a minimum? Finally, it has been well said that the style of writing is an echo of the man's own soul. A blatant, didactic style is the mark of the egoist; a simple, reserved style, the sign of a conservative thinker; a careless, rambling style, evidence of a slipshod worker. And these comments will apply to manuscripts as well as to books.

Association News

THE BOSTON SESSION

Plans for Increasing Attractiveness of the Scientific Exhibit

The Scientific Exhibit at the annual sessions of the American Medical Association never has fully measured up to the standard desired. This fact was presented to the Board of Trustees of the Association at its meeting last April in New Orleans by Dr. D. Chester Brown, a member of the board. In the discussion by the board it was emphasized that the Scientific Exhibit cannot fulfil its functions and be what it ought to be until it is brought into closer touch with, and becomes a real adjunct of, the sections and section work. The Board of Trustees appointed a committee, consisting of Drs. Brown, Billings and Phillips, to consider the best method of interesting and securing the cooperation of the officers of the various sections and the Fellows of the Scientific Assembly, in an endeavor to improve the Scientific Exhibit and to make it more attractive and of more practical value to the general practitioner as well as to scientific workers.

The committee presented the matter to the Council on Scientific Assembly at its meeting at the Association headquarters, December 9, and on the following day to the conference of the officers of the sections. Both the council and the conference endorsed the general proposition and evidenced their readiness to cooperate toward securing a closer association between the sections and the Scientific Exhibit.

Briefly stated: Many subjects are presented before the sections in the form of papers which, if there were time and opportunity, could be demonstrated by specimens, material, instruments, apparatus, charts and the like, or by lantern slides or moving picture talks. It is now proposed that the author shall be encouraged to supplement his paper with an exhibit, if possible, the material to be placed in the Scientific Exhibit and demonstrated there by the author. If the exhibit is a movable one, it may be taken to the meeting place of the section at the time of the reading of the paper, and then returned to its place in the Exhibit Hall. In connection with the Scientific Exhibit, a dark room usually is available for lantern slide or moving picture talks.

It is strongly emphasized that "still" exhibits are of little value. What is desired is personal demonstration or explanatory talks by the one who is interested in and can teach the subject. Definite time will be assigned for such personal demonstrations or talks—presumably one, possibly more than one, demonstration each day.

It is unnecessary to say that the primary object in mind is to bring to the mass of the profession attending the annual session a knowledge of the newer things in the progress of scientific medicine, and thus not to limit presentation of such subjects to the comparatively small group of physicians

attending a particular section. The man who has something new and important will have an opportunity to show it to all the Fellows in attendance at the annual session, and thus to aid them in keeping in touch with the advances made in every branch of medicine.

The exhibits will be arranged in three main divisions: Medicine, Surgery and Pathology. Each exhibit will be designated by letters and numbers, and catalogued. Full publicity will be given; in addition to the announcements in the Official Program, the Daily Bulletin will contain the complete program of the demonstrations of exhibits for each day, thus assuring a good audience to every Fellow who has something to say or to show.

It is requested of those who propose to present an exhibit that they let it be known as soon as possible, stating the character of the exhibit, the amount of space in square feet absolutely necessary, and whether wall or table space is required. It will be taken for granted that exhibitors will ask only for the space they actually need.

Preliminary correspondence concerning the question of whether or not a Fellow should make an exhibit of a subject which he proposes to present before one of the sections should be addressed to the secretary of the section. After such preliminary arrangements, correspondence regarding exhibits should be direct with the Association's central office, but, to save time, to avoid complications and misunderstandings, and to prevent duplication of work, carbon copies of the correspondence should at the same time go to the secretary of the section.

In this broad conception, the sections representing the fundamentals of medicine will be assigned to the Pathological Division, the specialties of medicine to the Medical Division, and the specialties of surgery to the Surgical Division. Institutions and individuals will, as heretofore, be invited to present exhibits, the material of which will be assigned to the proper division.

Finally, the proposed plan means that in addition to the character of the exhibits heretofore made, the sections will cooperate in making the Scientific Exhibit creditable to the American Medical Association and to American medicine.

The Committee on Scientific Exhibit for the current year consists of:

Dr. Cecil K. Drinker, associate professor of applied physiology, Harvard Medical School, Boston, chairman.
Dr. J. W. Jobling, professor of psychology, Columbia University College of Physicians and Surgeons, New York.
Dr. Louis B. Wilson, professor of pathology, University of Medicine, Rochester, Minn.
Dr. William M. L. Coplin, professor of pathology, Jefferson Medical College, Philadelphia.
Dr. Frank Billings, secretary of the Board of Trustees, Chicago.

Requests for space should be addressed to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, Ill.

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE, PUBLIC HEALTH AND HOSPITALS

On March 7, 8, 9 and 10, 1921, a joint conference will be held on medical education, licensure, public health and hospitals. This will be participated in by the Council on Medical Education and the Council on Health and Public Instruction of the American Medical Association, the Association of American Medical Colleges, the Federation of State Medical Boards of the United States, and the American Conference on Hospital Service. On Monday, March 7, there will be a symposium on graduate training in the various medical specialties. Besides the introductory remarks from the chairman and a paper dealing with the group system of practice, the following reports will be presented:

Medicine and the Medical Specialties—
(a) Internal Medicine, George Blumer, M.D., Clinical Professor of Medicine, Yale University School of Medicine, New Haven, Conn.
(b) Pediatrics, Harry M. McClanahan, M.D., Professor of Pediatrics, University of Nebraska College of Medicine, Omaha.
(c) Nervous and Mental Diseases, Arthur S. Hamilton, M.D., Professor of Nervous and Mental Diseases, University of Minnesota Medical School, Minneapolis.
(d) Dermatology and Syphilology, William A. Pusey, M.D., Emeritus Professor of Dermatology, University of Illinois College of Medicine, Chicago.

Surgery and the Surgical Specialties—
(a) Surgery, Charles H. Frazier, M.D., Professor of Clinical Surgery, University of Pennsylvania School of Medicine, Philadelphia.
(b) Ophthalmology, Walter B. Lancaster, M.D., Boston.
(c) Oto-Laryngology, Wendell C. Phillips, M.D., New York.
(d) Orthopedic Surgery, Robert W. Lovett, M.D., Professor of Orthopedic Surgery, Medical School of Harvard University, Boston.
(e) Urology, Hugh H. Young, M.D., Clinical Professor of Urology, Johns Hopkins University Medical Department, Baltimore.

AFTERNOON SESSION—2 P. M.

Obstetrics and Gynecology, J. Whitridge Williams, M.D., Dean and Professor of Obstetrics, Johns Hopkins University Medical Department, Baltimore.
Public Health and Hygiene, Victor C. Vaughan, M.D., Dean and Professor of Hygiene and Physiological Chemistry, University of Michigan Medical School, Ann Arbor, Mich.
Preclinical Subjects—
(a) Anatomy, Clarence M. Jackson, M.D., Professor of Anatomy, University of Minnesota Medical School, Minneapolis.
(b) Physiology, Joseph Erlanger, M.D., Professor of Physiology, Washington University School of Medicine, St. Louis.
(c) Pharmacology and Therapeutics, Charles W. Edmunds, M.D., Professor of Materia Medica and Therapeutics, University of Michigan Medical School, Ann Arbor, Mich.
(d) Pathology and Bacteriology, James Ewing, M.D., Professor of Pathology, Cornell University Medical College, New York.

All the reports will be briefly summarized by Dr. Louis B. Wilson, director of the Mayo Foundation for Medical Education and Research.

On Tuesday, March 8, there will be a series of reports on the clinical subjects of the medical curriculum. Besides the introductory remarks by Dr. William Pepper, president of the Association of American Medical Colleges, the following reports will be rendered:

Medicine and Medical Specialties, Charles P. Emerson, M.D., Dean and Professor of Medicine, Indiana University School of Medicine, Indianapolis.
Surgery and Surgical Specialties, Hugh Cabot, M.D., Professor of Surgery, University of Michigan Medical School, Ann Arbor, Mich.

AFTERNOON SESSION—2 P. M.

Obstetrics and Gynecology, J. Whitridge Williams, M.D., Dean and Professor of Obstetrics, Johns Hopkins University Medical Department, Baltimore.
The Undergraduate Clinical Curriculum, Frank Billings, M.D., Professor of Medicine, Rush Medical College, Chicago.

On Wednesday, March 9, the morning session will be devoted to medical examinations and licensure. The program will be as follows:

Introductory Remarks, David A. Strickler, M.D., President of the Federation of State Medical Boards, Denver.
Medical Education and Licensure in America as Viewed by European Visitors, Walter L. Bierring, M.D., Secretary of the Federation of State Medical Boards, Des Moines, Iowa.
Model Qualifying Examination as Demonstrated by the National Board of Medical Examiners, Horace D. Arnold, M.D., Member of the National Board of Medical Examiners, Boston.
Education of the Public Regarding Problems of Medical Licensure, George W. Whiteside, Esq., Counsel for the New York State Medical Society, New York.
The Chiropractic Problem, Charles B. Pinkham, M.D., Secretary, Board of Medical Examiners of the State of California, Sacramento, Calif.

On Wednesday afternoon there will be a conference on hospital service, the speakers on the program being as follows:

Frank Billings, M.D., Professor of Medicine, Rush Medical College, Chicago.
S. S. Goldwater, M.D., Superintendent of Mount Sinai Hospital, New York.
Father Charles B. Moulinier, President of the Catholic Hospital Association, Milwaukee.
Miss Lulu Graves, Professor of Dietetics, Cornell University Medical College, New York.
Miss Donelda R. Hamlin, Director, Hospital Library and Service Bureau, Chicago.

There will also be a general discussion on "The American Conference on Hospital Service" by Dr. George E. Vincent or Mr. E. R. Embree of the Rockefeller Foundation, New York; Ray Lyman Wilbur, M.D., president of Leland Stanford University, San Francisco; William J. Mayo, M.D., Rochester, Minn., and other prominent speakers.

On the morning of Thursday, March 10, the following papers will be given on rural health centers:

Rural Health Centers as an Aid to General Practitioners, Victor C. Vaughan, M.D., Chairman, Council on Health and Public Instruction, American Medical Association.
What We Have Done in Iowa, F. E. Sampson, M.D., Creston, Iowa.

On Thursday afternoon there will be a discussion of the work for public health by the following:

From the Standpoint of the Council on Health and Public Instruction of the American Medical Association, W. S. Rankin, M.D., Secretary, North Carolina State Board of Health, Raleigh, N. C.
From the Standpoint of the State Health Officer, S. J. Crumbine, M.D., Secretary, Kansas State Board of Health, Topeka, Kan.
From the Standpoint of the State Medical Society, F. C. Warnshuis, M.D., Secretary, Michigan State Medical Society, Battle Creek, Mich.
From the Standpoint of the State Public Health Association, Celestine J. Sullivan, Secretary, League for the Promotion of Public Health, San Francisco.
From the Viewpoint of the Voluntary Public Health Association, Charles I. Hatfield, M.D., Secretary, National Tuberculosis Association, New York.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

State Cancer Control Society.—At a meeting held at Little Rock, January 3, the Arkansas State Cancer Control Committee formally voted to organize a state society for the control of cancer and elected Dr. Dewell Gann, Jr., Benton, chairman of the committee. Other physicians on the committee include Dr. William R. Bathurst, editor of the *Journal of the Arkansas Medical Society;* Dr. Charles W. Garrison, state health officer, and Dr. Carl E. Bentley. It is planned to organize a chapter in each county of the state, and to conduct an educational campaign through lectures and through the free distribution of literature. A public lecture will be given at Little Rock in April, and similar meetings will be arranged at Pine Bluff, Hot Springs, Fort Smith, Texarkana, and other cities.

CALIFORNIA

Japanese Fined for Illegal Practice.—It is reported that Kenzo Koga and T. Nakamura of Marysville recently pleaded guilty to the charge of practicing medicine without licenses. Each was fined $500.

Loses Action to Recover License.—The district court of appeals has upheld the right of the state board of medical examiners to revoke the license of Dr. Thomas F. Glass, Los Angeles. The board revoked Dr. Glass' license, it is reported, on account of unprofessional conduct.

Special Lectures at Stanford University.—Dr. Shepherd Ivory Franz, professor of physiology and experimental psychology at George Washington University, Washington, D. C., gave a series of lectures on cerebral functions and reeducation under the auspices of the department of psychology at Leland Stanford University, early in January.

Chiropractor Found Guilty.—W. E. McClelland, chiropractor of Eureka, is reported as having been found guilty of the charge of practicing medicine without a license. In accordance with an agreement between the prosecution and the defense, a second charge against McClelland was dismissed on the promise of the defendant that he would no longer attempt to practice in the county.

DISTRICT OF COLUMBIA

Health Officer Seeks Leper Transfer.—Dr. William C. Fowler, district health officer, has renewed his request to the U. S. Public Health Service for the transfer to the government leprosarium at Carville, La., of two lepers at present quarantined in Washington.

Tribute to Memory of General Gorgas.—Representatives of many nations joined in a tribute to the memory of Gen. William C. Gorgas, at exercises held at the Pan-American Union Building, January 16, under the auspices of the Southern Society of Washington. The speakers included the Secretary of War and the Secretary of the Navy, the ambassadors of France and Peru, the ministers of Cuba and Ecuador, Major-Gen. Peter C. Harris, U. S. Army, and Major-Gen. H. K. Bethell, military attaché of the British Embassy.

FLORIDA

Health Service Hospital Opened.—The U. S. Public Health Service Hospital at Lake City was formally opened for the reception of patients, December 6. Surg. Almon P. Goff, U. S. P. H. S., is medical officer in charge, and Drs. Benjamin Manhoff and John G. Cullins are his immediate assistants. A number of patients have already been received and it is expected that the hospital facilities will be fully utilized within a short time.

ILLINOIS

Radium Association Organized.—The Physicians' Radium Association of Quincy was organized recently by physicians of that city and will be incorporated as a stock company under the laws of Illinois. The object of the organization is to purchase radium, to make a study of its remedial properties, and to apply these in practice.

Healer Fined.—"Professor" J. M. Powell, "Healer and Teacher of Metaphysics," Joliet, was arrested on complaint of the Department of Registration and Education for violation of the medical practice act. Powell, who has been operating a "temple" and who has "treated" hundreds of persons since his arrival at Joliet, was fined $100 and costs. An investigation of his "temple" disclosed a peculiar "altar," on which was found, among many sacred statues, a dish containing onions, apples, toy magnets and a small statue of Buddha. "Professor" Powell called this a "healing battery" and told his patients it was charged, and that he was "controlled" by a "Dr. Donaldson," a physician who has been dead forty years. Powell said that Dr. Donaldson "tells me exactly what to do for sick persons." Powell has promised to cease all practice and to close his "school."

Chicago

Personal.—Dr. Henry F. Helmholz has moved to Rochester, Minn., to assume the position of professor of pediatrics in the Mayo Foundation and head of the section of pediatrics in the Mayo Clinic.

INDIANA

Personal.—Dr. Wier H. Miley has been appointed city sanitarian of Anderson.

Society Receives Mears Bequest.—The Indianapolis Medical Society has received the bequest from the estate of Dr. J. Ewing Mears, amounting to $5,000, the interest from which will be used for the upkeep of the Dobbs Medical Library, now housed in the City Library of Indianapolis.

Hospital Notes.—An organization, representing churches, patriotic societies, social clubs and lodges, has been formed to take over the Home Hospital at Anderson for the purpose of conducting it as a community institution.——The Winamac Hospital at Winamac was completely destroyed by fire, entailing a loss estimated at $15,000.

Medical Society Meeting.—Hereafter the Indianapolis Medical Society will hold its meetings at the new Indiana Dental College Building. The annual election held, January 4, resulted in the choice of the following officers for the ensuing year: president, Dr. Amos L. Wilson; vice presidents, Drs. Homer G. Hamer and Charles D. Humes, and secretary-treasurer, Dr. Leslie H. Maxwell.

IOWA

Faculty Appointment.—Dr. Oscar H. Plant has been appointed professor of materia medica and pharmacology at the University of Iowa, and will become head of the department, to succeed Dr. Charles S. Chase. Dr. Chase will remain with the university as full professor and will teach pharmacology and engage in research and writing.

KANSAS

County Society Reorganized.—Following a banquet at the Riverside Hotel, Burlington, the Coffey County Medical Society was reorganized, and Dr. John C. Fear, Waverly, was elected president, and Dr. Archie B. McConnell, Burlington, secretary. The society had virtually disbanded during the war, owing to the absence of many physicians from the county because of military duty.

MAINE

Personal.—Dr. Leverett B. Bristol, Augusta, state commissioner of health, has been made chairman of the health directorate of the State Chamber of Commerce and Agricultural League.

Activities of State Health Department.—During the last year the state was divided into eight health districts each in charge of a full-time district health officer, with headquarters at Biddeford, Lewiston, Damariscotta, Waterville, Bangor, Machias, Millinocket and Presque Isle. Prior to Jan. 1, 1920, there were only two regular full-time health officers in the state, namely, at York and Portland. Since then six additional full-time officers have been engaged by cities and towns, including, Bath, Auburn, Lewiston, Bangor and the two health unions. A new division of public health nursing and child hygiene has been formed, the salary of the director being paid jointly by the Maine Public Health Association and the American Red Cross.

MARYLAND

Society Meetings.—At a meeting of the Book and Journal Club of the Medical and Chirurgical Faculty of Maryland, held at Osler Hall, January 13, Dr. John Ruhräh gave a talk on "An Old Minute Book of the Faculty, 1849-1891," and Col. James Robb Church, editor of the *Military Surgeon*, spoke on "Some New Additions to the Library," and "Being a Military Observer."

Personal.—Dr. John S. Fulton, secretary of the state board of health, addressed the citizenship school of the Women Voters League of Annapolis, January 10, on the functions of the health board.——Dr. John W. Harrison, Middle River, president of the Baltimore County Medical Association, has been appointed a member of the county commissioners.——Dr. Wilfred Grenfell will deliver a lecture, January 24, in Baltimore, in the interest of his humanitarian work in Labrador and Newfoundland.

Proposes Hopkins Unit for China.—Dr. Edward H. Hume, dean of the Yale Medical College of Changcha, Hunan Province, China, is in Baltimore endeavoring to interest the Johns Hopkins Medical School in a proposition to establish a Hopkins unit at Changcha, where the Yale school is located. While in this country he will endeavor to have other educational institutions establish similar units. The Yale Medical College, which was started in 1906 by a group of Yale men in China, has had remarkable success, especially since 1913, when the school got the promise of a large building. It is the only medical school in China for whose maintenance a whole province cooperates with the school authorities.

MICHIGAN

Tuberculosis Clinic.—A free tuberculosis clinic was conducted in Ottawa County, January 17-20, under the auspices of the state department of health. Clinics were held in Zeeland, Holland, and Grand Haven, and special attention was paid to underweight children. Dr. George H. Ramsey conducted the clinic and was assisted by Dr. Frank L. Rose.

Prohibition and the County Physician.—According to the records of the sheriff of Kent County, there is no need for the services of the county physician since the advent of prohibition, as on the average only four calls a month are now made at the jail for medical services. The county board of auditors has therefore voted to abolish the office of the county physician, and in the future private physicians will be summoned when professional services are needed.

Program of State Health Department.—The state department of health has proposed to the legislature that the following measures be authorized in the present session: 1. The employment of a full-time health officer in every county with a population of 25,000 or more; the health officer to be chosen from a list of physicians approved by the health department. 2. Adequate laws to control lake and stream pollution and sanitary conditions at Michigan pleasure resorts, and regulations governing water purification and sewage disposal. 3. A fund to provide free and unlimited distribution of diphtheria antitoxin and other specific biologic products.

NEBRASKA

Hospital Fire.—Fire during the night of December 20 destroyed the nurses' home at the University of Nebraska Hospital at Omaha, and resulted in the injury of six nurses. Twenty nurses were forced to leap from windows on the second story.

NEW JERSEY

Personal.—Dr. Sarah E. Selover has been appointed a member of the board of health of South River.——Dr. Francis W. Bennett has sailed for Cairo, Egypt, on a two months' tour of the Near East and southern Europe.

Illegal Practitioners Convicted.—It is reported that in December, 1920, Helen Sitkowski and Sophia Juhas, licensed midwives of New Jersey, were convicted of practicing medicine without licenses and were fined $200 each.

NEW YORK

Medical Examination of Jail Inmates.—The state prison commission has adopted a resolution urging the sheriff and board of supervisors of each county in the state to make provision for the medical examination of every person admitted to a county jail and to arrange for the segregation of all prisoners afflicted with venereal disease, tuberculosis or other communicable diseases.

Lancaster Health Committee.—The December *Health News* announces that a health coordination committee has recently been organized in Lancaster for (1) the coordination of health activities in the community, (2) the promotion of public health education, and (3) the support of approved health measures and cooperation with public authorities in meeting emergencies relative to public health.

Society Organized.—The New York State Society of Industrial Medicine was organized at Syracuse in connection with the fifth annual New York State Industrial Congress. Dr. Patrick H. Hourigan, Buffalo, was elected president; Drs. Clyde E. Ford, New York, and Claudius H. Watson, Brooklyn, vice presidents; Dr. William Alfred Sawyer, Rochester, secretary, and Dr. Charles G. McMullen, Schenectady, treasurer.

Quarantine Under Federal Control.—Deeds of conveyance transferring from state to federal control the Quarantine Station at the port of New York have been sent to Washington. The property involved includes an 18 acre reservation and buildings at Rose Bank, Staten Island, and buildings on Hoffman and Swinburne islands, and several boarding and fumigating tugs and launches, for which the federal government is allotting $1,395,275.

New York City

Anthrax from Gloves.—A case of anthrax believed to have been caused by infection from a pair of undressed kid gloves is under treatment at St. Mary's Hospital.

Cornell Endowment Fund.—The endowment committee of the board of trustees of Cornell University has announced that its semicentennial fund amounts to $8,952,770. Of this sum $500,000 is for the medical college in New York City and $1,500,000 for a new chemistry laboratory.

Fund to Bar European Diseases.—The Board of Estimate and Apportionment of New York City has granted the request of Dr. Royal S. Copeland, commissioner of health, for $40,000 in special revenue bonds for use in the control of typhus fever, bubonic plague and other communicable diseases prevalent in Europe.

Medical Advice to Ships by Wireless.—At the school of medical instruction recently established through an arrangement between the Seamen's Church Institute of New York and the Navy Department, mariners are instructed, if called on to treat a serious case of illness or accident at sea, to seek advice by wireless telegraph from the physician in charge at the Seamen's Institute until the ship reaches harbor or until assistance is obtained from another vessel. The emergency call for medical help is "KDKE" which will be entered in the international code, and will be as intelligible as the "SOS" for vessels in distress.

NORTH CAROLINA

Narcotic Clinic.—The Durham-Orange Board of Health has decided to establish a narcotic clinic as a department of the health office and has named Dr. John M. Manning as director. Headquarters of the clinic will be at the health department office.

State Health Education Campaign.—Since March, 1920, the North Carolina Board of Health has had in use a special car to carry moving picture exhibits on tuberculosis, oral hygiene, and agricultural subjects in connection with its campaign for health instruction among the negroes of the state. Dr. D. T. Ransom is director and operator of the car which has traveled about 4,000 miles in giving more than

150 exhibitions in twenty-five counties to approximately 35,000 people. The entire cost of equipment and operation for six months was less than $3,700.

OHIO

Fined for Health Act Violation.—It is reported that Dr. John C. Snyder, Bowling Green, entered a plea of guilty to a charge of failing to report a contagious disease to the city health department, and was fined $25 and costs.

New Hospital at Cleveland.—The executive board of the Lutheran Hospital Association, Cleveland, has decided to proceed with the construction of the proposed new hospital building for which a fund of $140,000 was subscribed in a campaign last summer. The new building will be erected on the site of the present hospital on Franklin Avenue and will, when completed, provide eighty beds for immediate use.

PENNSYLVANIA

Orthopedic Society Formed.—At a meeting held, December 3, the Pittsburgh Orthopedic Club was inaugurated and the following officers elected: president, Dr. Stewart L. McCurdy; vice president, Dr. David Silver, and secretary, Dr. Eben W. Fiske.

Appointment on Rockefeller Foundation Board.—Dr. Oscar Klotz, professor of pathology in the University of Pittsburgh Medical School, has been appointed a representative of the International Health Board of the Rockefeller Foundation for work in medical research and education in São Paulo, Brazil. It is expected that Dr. Klotz will spend a number of years in Brazil during which time he will serve as director of a pathologic institute. He will be assisted by several Brazilian physicians who have received their training in the United States.

Dr. William S. Foster Honored.—The Allegheny County Medical Society gave a testimonial dinner to Dr. William S. Foster at the Hotel Schenley, Pittsburgh, January 11, at which a silver loving cup was presented to him. The cup bore the inscription "Presented to William Sill Foster, M.D., by the Allegheny County Medical Society, January Eleventh, Nineteen Hundred and Twenty-One, In grateful recognition of his long and faithful service as an officer and member, 1867-1921," and on the obverse, "William Sill Foster, Physician, Humanitarian, Scholar, Cultured Gentleman, Suaviter in modo, fortiter in re." In acknowledging the honor accorded him, Dr. Foster emphasized his evaluation of the associations formed by attendance at meetings of the county, state and national branches of the organization of the medical profession, and urged practitioners to develop "the finer social and professional ethics that surely lead to the esteem of mankind."

Philadelphia

Mercy Hospital Seeks Fund.—The Mercy Hospital auxiliary committee is conducting a campaign for $5,000 for the purpose of installing and maintaining a roentgen-ray department.

Personal.—Dr. Knight Dunlap, professor of experimental psychology at Johns Hopkins University, participated in a symposium on "Occultism Particularly with Reference to Spiritualism, Freudianism and Other Phases of Mysticism" before the Philadelphia County Medical Society, January 12.

SOUTH CAROLINA

New County Physician.—Dr. James E. Cudd has been appointed physician of Spartanburg County to succeed Dr. Oliver Leonard.

Convicted of Narcotic Law Violation.—It is reported that Dr. Francis D. Kendall, Columbia, was recently convicted in the United States district court of Charleston on a charge of violating the Harrison Narcotic Law, and was sentenced to serve six months in jail and to pay a fine of $1,000.

TENNESSEE

Fined for Harrison Law Violation.—It is reported that Dr. A. G. Kyle, Knoxville, recently pleaded guilty in the federal court to a charge of violating the Harrison Narcotic Law and was fined $500 and costs.

Personal.—Dr. Frank B. Hamilton has been reelected Madison County health officer for a term of two years.——Dr. Lloyd S. Nease, Newport, has been appointed medical director of the Memphis General Hospital.——Dr. Harry W. Qualls, Union City, has been appointed a member of the state board of medical examiners.

TEXAS

Personal.—Dr. Manton M. Carrick, Dallas, has been appointed state health officer.

Maternity Homes Under Control.—An ordinance was recently passed by the Dallas city commission providing for the appointment of a maternity board, to consist of the director of public health, director of public welfare and a reputable physician, which shall have power to inspect and regulate all maternity homes. Hereafter these institutions must be licensed and the board is empowered to revoke the license for violations of regulations. It is also stipulated that maternity homes shall not make a practice of offering children for adoption and that a complete record be kept of each case.

CANADA

Personal.—Dr. Ardrey W. Downs, formerly assistant professor of physiology at McGill University, has been appointed to the chair of physiology in the University of Alberta.——Dr. J. Maynard, Toronto, has been appointed an assistant in anatomy in the University of Toronto.—Dr. Ada Speers of China is in Canada on furlough taking a postgraduate course.

Hospital News.—Fire gutted the new infirmary of the Ontario Hospital for the Insane at Whitby during the night of January 13. The damage to the building, which was not fully completed, is estimated at $60,000.——At present there are in the military hospitals in and near Toronto 1,200 soldiers, but there are about 125 beds vacant in the Brant institution near Hamilton. Altogether the Department of Civil Reestablishment is now treating 9,000 soldiers in Canada. It has been decided that discharged soldiers who are unemployed will be treated free by the department, which will necessitate an increase in the medical staffs as the number of unemployed soldiers is approximately 12,000.——The board of health of Brantford, Ont., has urged on the municipal authorities the necessity of building an isolation hospital, for which $30,000 has already been voted.

GENERAL

Fraternity Meeting.—At the seventeenth annual convention of the Phi Delta Epsilon Medical Fraternity, held at the Waldorf-Astoria Hotel, New York, December 27 and 28, Dr. David W. Kramer, Philadelphia, was elected grand consul, and Dr. Morris E. Greenberger, New York, grand scribe.

Pamphlets on Child Hygiene.—The *Evening Herald* of Los Angeles has prepared in pamphlet form for free circulation the articles on Child Hygiene, prepared by the U. S. Public Health Service, and originally printed by 100 leading newspapers of the country for the purpose of imparting dependable information regarding child welfare.

Southwest Society Elects.—At the sixth annual meeting of the Medical and Surgical Association of the Southwest, held at El Paso, Texas, under the presidency of Dr. William Warner Watkins, Phoenix, Ariz., the following officers were elected for the ensuing year: president, Dr. James Vance, El Paso, Texas; vice presidents, Drs. Meldrum K. Wylder, Albuquerque, N. M., John E. Bacon, Miami, Ariz., and secretary-treasurer, Dr. John R. Van Atta, Albuquerque, N. M.

Philippine News.—The Cancer Committee of the Philippine Islands Medical Association has decided to begin an active campaign against this disease, and to form a society, open to laymen as well as physicians, in order to take charge of the campaign.——The Medical Pharmaceutical Association of the Philippines recently adopted a resolution requesting that all the lepers now at the Culión Leper Colony receive the benefit of the modern treatment of leprosy.——Another monument has been erected at Pasig to the national Philippine hero, Dr. J. P. Rizal.

Bequests and Donations.—The following bequests and donations have recently been announced:

The Presbyterian Hospital, $50,000; Memorial Hospital, Morristown, N. J., $25,000; Women's and Maternity hospitals, New York, each $10,000, by the will of William V. S. Thorne.

Harvard Medical School, $50,000, by the will of Mrs. Lucy H. Bowdoin, Salem, Mass.

Brockton Hospital, $200,000, by the will of George E. Keith, Brockton, Mass.

Massachusetts General Hospital, $20,000, and Harvard University, $20,000, to be added to the Thomas Jefferson Coolidge Fund, by the will of Thomas Jefferson Coolidge, Boston.

Chiropractic Bill for the District of Columbia.—A chiropractic bill, S. 4780, introduced in the United States Senate, January 5, provides for a separate board of chiropractic examiners for the District of Columbia. Needless to say, the

bill is silent in regard to the standards of preliminary education. The chiropractic course is stated as "two years of not less than six calendar months each," but it is provided that "physicians of other schools of healing who have taken shorter courses" shall also be eligible. "After the passage" of the act, however, it is stipulated that "all applicants shall have attended a resident school for three years of not less than six months each."

Leonard Prize for Radiology Research.—The American Roentgen Ray Society will award $1,000 to the author of the best piece of original research in the field of the roentgen ray, radium or radio-activity. The competition is open to any one living in the United States or its possessions, in Canada, Mexico, Central or South America, Cuba or other islands of the Western Hemisphere. The results of the research must be submitted in literary form in the English language not later than July 1, 1921, and must never have been published. Each paper must be signed by motto, and should be accompanied by a sealed envelop bearing the motto and containing a slip with the author's name. The prize paper must be presented before the American Roentgen Ray Society at its next annual meeting, September, 1921. The prize commemorates the name of Dr. Charles Lester Leonard, a pioneer worker in the field of the roentgen ray. Communications may be addressed to members of the committee: Dr. A. W. Crane, 420 South Rose Street, Kalamazoo, Mich.; Dr. P. M. Hickey, 32 Adams Avenue, West, Detroit, and Dr. Henry K. Pancoast, University Hospital, Philadelphia.

Congressional Legislation.—The House Committee on Education has voted to report favorably the so-called Smith-Towner Bill, which "would create a department of education and authorize the expenditure of money to encourage the states in the promotion and support of education." This is one group of four so-called bureaucratic bills, which includes the Sheppard-Towner Bill, commonly known as the maternity bill. The latter measure, already passed by the Senate and now pending before a House committee, provides for the employment by the federal government and the states of maternity nurses and for the establishment at public expense of maternity centers in each county. The principal object of the Smith-Towner Bill is to provide "for physical education and instruction in the principles of health and sanitation and for providing school nurses, school dental clinics and otherwise providing physical and mental welfare." If the bill becomes a law in its present form, a nursing center and school dental clinics will be provided in every county of the states cooperating with the federal government. Hearings are also being held by the House Committee on Education on the Foss-Capper Bill, which proposes to create a department of physical education.

LATIN AMERICA

Dr. Neiva in Japan.—THE JOURNAL mentioned last June that Dr. A. Neiva, chief of the public health service of the state of S. Paulo, Brazil, had been commissioned by the authorities to study public health methods in this country and in Japan, and the prophylaxis of leprosy. The *Brazil Medico* states that he was tendered a banquet on his recent arrival in Japan, Professor Kitasato presiding, with cabinet ministers present among others, and Dr. Neiva was invited to deliver lectures at various points. His trip now ended, he returns to Brazil by the *Takoma Maru* which plies directly between Japan and Brazil. Dr. Neiva was hailed in Japan as the successor of Oswaldo Cruz, the South American scientist best known in the old world.

Third Venezuelan Congress of Medicine.—The organization committee of the Third Venezuelan Medical Congress has appointed a vice president for each state to report on regional medical geography, the causes of mortality and preventive measures. The First Venezuelan Medical Congress was held in Caracas in June, 1911; the second at Maracaibo in January, 1917, and the third will meet at Ciudad Bolivar. The organizing committee is constituted as follows: president, Dr. J. T. Ochoa; vice president, Dr. J. M. García Parra; treasurer, Dr. Santiago Izaguirre, and secretary, Dr. Félix R. Páez. There is also an auxiliary commission appointed by the Academy of Medicine, consisting of Drs. F. A. Risquez, L. Razetti, A. Ayala, and González Rincones.

First Mexican Child Congress.—At the Congreso Mexicano del Niño, which was held early in January in Mexico City, resolutions were adopted advocating a campaign of propaganda, the adoption of child welfare laws, free distribution of tooth brushes, and establishment of children's hospitals and asylums. The officers appointed were Ing. F. F. Palavicini, president; Dr. F. Castillo Nájera, secretary; Drs. M. Ochoterena, R. Carrillo, J. Cosío, R. Macouzet, A. Pruneda, and Lic. L. Jasso, members. The second congress will be held Jan. 2, 1923. Among the principal addresses were those by Dr. A. Brioso Vasconcelos on eugenics, Dr. E. O. Aragón on infant psychology, Dr. A. Torres Estrada on the education of the blind, and Dr. A. Pruneda on Mexican food habits.

FOREIGN

Endowment for Middlesex Hospital School.—The Middlesex Hospital Medical School has received an anonymous gift of £20,000 for the endowment of the university chair of physiology. The chair is held by Prof. Swale Vincent, well known for his work on the endocrine glands and internal secretions. Of the six professorial chairs in the medical school, two are now endowed.

Honors for Roentgen.—The twenty-fifth anniversary of the publication of the discovery of the roentgen ray by Professor Roentgen has been noticed with various tributes to Roentgen in Germany. He retired last spring from the chair of experimental physics at the University of Munich, but his discovery of the rays that bear his name was made at Würzburg, in 1895. Roentgen is not a physician although roentgenography has come to play such a large part in medicine. He will be 76 next March.

The Nobel Prizes.—A Munich exchange quotes the Swedish dailies to the effect that there have been 101 awards made during the twenty years of the Nobel Prize endowment, and 12,000,000 crowns have thus been distributed. The prizes have averaged 140,000 crowns (about $35,000). Four women have been recipients of prizes, and 38 of the prize-winners have died. Germany has received 23 of the prizes; France 20, England 9, Switzerland 8, America and Sweden 6, Denmark and Holland, 5, Italy and Belgium 4, Austria 3, Norway, Russia and Spain, each 2, and Scotland and India, each 1.

Official Control of Wassermann Test.—Our German exchanges state that the "Verstaatlichung"—the quotation marks are theirs—of the Wassermann reaction went into effect, Jan. 1, 1921. According to the new regulation, physicians who specialize in examination of blood by the Wassermann technic will have to obtain a special permit to do so. They will be required to do the work under certain special conditions and use for the test only extracts which have been officially standardized. The official standardization is done at the Institut für experimentelle Therapie at Frankfurt a. M., of which Prof. W. Kolle is in charge. These restrictions apply only to physicians who do a laboratory business with specimens sent in from outside. They do not apply to the test in private practice or in public institutions.

Centennial of the Académie de Médecine of Paris.—Our Paris exchanges for the last week in December are crowded with accounts of the elaborate festivities of the centenary of the Académie de médecine. The entire issue of the *Presse médicale* for December 25 is devoted to an illustrated description, with the addresses delivered by Laveran, the present president of the académie, and others. The official delegates from other countries included sixteen from England, five from the United States; eleven from Belgium, including Bordet, Brachet and Willems; Arteaga from Bolivia; O. de Oliveira from Brazil; Córdova, Donoso, Orrego and Sierra from Chile; Esguerra and Machado from Colombia; Cueva and Villamar from Ecuador; Nourgo and Robles from Guatemala; Arce and Chutro from Argentina; two delegates also from Peru; Silva from Salvador; Carlos, Fonseca, Tijera, Rincones, Risquez and Velásquez from Venezuela; Ito and Tsuchiga from Japan; O. Pei-Huan from China; Robert from Siam, and Cassens from Haiti. Twenty-nine countries were represented in all. A medal to commemorate the occasion was struck. The president of the Republic of France was present with two of his ministers and all the préfets of the département. The celebration concluded with a banquet and a reception at the Palais d'Orsay. Toasts were offered at the banquet by Cassens for Haiti; Recasens for Spain; van der Berg for Holland; Cueva for Ecuador; Kalliontzis for Greece, and Lucatello for Italy. Wright of England was seated at the right hand of the president of the académie.

Deaths in Other Countries

Dr. **M. Holl**, professor of anatomy at the University of Graz, aged 69.——Dr. **E. Solger**, Berlin, aged 86.——Dr. **Camors**, director of the contagious hospital at Alger.——Dr. **A. Puricelli** of Milan.——Dr. **Juan Pablo García** of Havana.——Dr. **Magnus** of Copenhagen, aged 97.

Government Services

Medical Officers at Army General Staff College

Beginning with the next annual session, four medical officers of the Army will be detailed to attend the General Staff College and the School of the Line regularly, if the recommendations of Surgeon-General Ireland are approved. Attendance at these schools by medical officers will materially broaden their military education, as the proposed course is designed to extend over four years, embracing one year at the School of the Line, one year at the General Staff School, one year's service with troops in the field, and the final year at the General Staff College.

Hospitals for Disabled Veterans

It is estimated by the Public Health Service that 10,000 additional beds are immediately needed for the hospitalization of disabled soldiers, according to a letter transmitted by Surgeon-General Cumming to a committee of the Senate. The greatest urgency exists in the case of tuberculous and neuropsychiatric patients. On Jan. 1, 1921, there were in the hospitals operated by the Public Health Service 12,511 patients, and in other hospitals under contract 9,781 patients. At present there are 300 applications on file, and many former officers who have hesitated to come into the reserve corps are now sending in their applications, presumably because of a better understanding of the status of the corps. Within the next month, it is expected, there will be issued the regulations and rules governing the appointment, assignment, promotion and training of officers of the reserve corps, prepared by the Committee of General Staff Officers and Reserve and Militia Officers in compliance with the Army Reorganization Act of June 4, 1920.

Army Medical Reserve Corps

A letter has been addressed to each officer now enrolled in the various sections of the Medical Reserve Corps in order to obtain information for the organization of a new reserve corps, more especially with a view to the classification of present members. The attention of the medical officers was also directed to the laws and regulations governing appointments, as these have undergone changes during the last year.

Schools of Instruction of Army Medical Corps

Important plans are under way by Surgeon-General Ireland for the centralization of all schools of instruction of the Army Medical Corps. Two special service schools will be maintained with various subdivisions, one, the Field Medical Service School at Carlisle Barracks, Pa., and the other the Army Medical School at Washington, D. C. The instruction at the Carlisle school will have for its object the ready adaptation of the civilian practitioner to the life, work and customs of the army, and will offer progressive courses covering all subjects, from recruiting to the organization, functions and administration of medical units. The Army Medical School at Washington will offer to commissioned graduates from the Carlisle school and to selected officers of the National Guard and Organized Reserve, what might be characterized as post-graduate courses in certain professional subjects in their application to military medicine, including bacteriology, parasitology and preventive medicine, sanitary chemistry, nutritional chemistry, clinical and operative surgery, clinical medicine, ophthalmology and roentgenology. All clinical work will be conducted at the Walter Reed General Hospital. There will also be established a school for nurses, a school of pharmacy, and a school for enlisted specialists. A medical research laboratory and school for flight surgeons will be maintained at Mitchel Field, Long Island, N. Y., with the object of training special medical officers for duty at flying fields. These officers will be encouraged to take flying instruction and to qualify as air pilots, for the purpose of acquiring a practical comprehension of the psychology of flying and studying the sensations produced during flight, with a view to correlating these with the symptoms of physical and mental exhaustion resulting from flights at high altitudes or over a long period of time.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 27, 1920.

Juvenile Employment

The whole position of juvenile employment in this country is about to be changed by the new education act. Children under the age of 12 years shall not be employed at all; children under 14 shall not be employed in street trading; children over 14 shall not be employed on Sundays, on schooldays before the close of school hours, or on any day before 6 a. m. or after 8 p. m. Sir George Newman, chief medical officer to the board of education, in his report, just issued, recommends that the school medical officer should report periodically on the employment of all children of school age and its effect on their health; he should examine employed children at once, and later, from time to time, reexamine, certifying if the employment is prejudicial to the health or physical development of the child; he should cooperate with the factory surgeon of the district in selecting children for factory work, and he should furnish the welfare supervisor of factories and workshops where the child is employed with the latest school medical reports on the child's physique. The report recommends cooperation between the industrial bodies, the local education authority, the sanitary authority, the certifying factory surgeon and the employer. The latter has the duty of accepting, postponing or rejecting in regard to the lad's employment.

Medical Women on the Prophylaxis of Venereal Disease

The prophylaxis of venereal disease continues to be a subject of controversy. In the latest pronouncement on the subject, the Medical Women's Federation refers to the fact that immediate self-disinfection has been advocated as a method of preventing the spread of venereal disease and brought to the notice of the public. Some consider that it is capable of virtually eliminating venereal disease. A society has been formed, one of whose objects is the widespread dissemination of careful and minute instruction on self-disinfection after sex intercourse. The Medical Women's Federation has carefully considered the question in all its bearings, and apart from the serious moral responsibility involved, is of opinion that on purely physical grounds there are serious objections to this method and to teaching its use to the public: (*a*) It would be most undesirable to teach young boys and girls to tamper with their sex organs, yet, if it were efficient, the method would have to be taught carefully, minutely, to young persons, even before puberty. (*b*) It would not be desirable to teach every married woman to regard her husband as possibly suffering from venereal disease and to take precautions accordingly, nor would it be possible for every bride to carry out the instructions given; yet disease among married women forms a large percentage of the whole. (*c*) The Medical Women's Federation believes that these methods are impossible for the majority of women to practice as recommended. Though a woman may be told to lubricate the vulva, in very few instances would the vagina and cervix be effectively treated. But infection with both gonorrhea and syphilis may take place at the cervix. The young are the most sought after and the most readily infected, and hence they are the most dangerous as regards the further spread of infection; and they are the people who would find it most difficult to carry out the method. (*d*) The means advocated, if properly carried out, are contraceptive. The federation is not prepared to endorse the introduction of contraceptives broadcast to the public or to recommend contraceptives for self-disinfec-

tion, when the action of such substances may not even be known to the user. "These methods are by no means certain to prevent infection, especially as it would be impossible to insure that they were really efficiently carried out. We therefore regard it as unfair to convey the impression of safety where it does not exist. Promiscuous intercourse cannot be made safe, and anything that tends to assume its safety may tend to increase it, and may thereby increase the incidence of the disease."

PARIS

(From Our Regular Correspondent)

Dec. 17, 1920.

Report on Scientific Mission to the United States

In the last two numbers of the *Presse médicale* Drs. G. Roussy and E.-E. Desmarest, agrégé professors of the Faculty of Medicine of Paris, have published a report on medical education in the United States. At the invitation of the National Board of Medical Examiners to send representatives to the regular annual examinations to be held in Philadelphia, the Faculty of Medicine appointed Drs. Roussy and Desmarest. The mission included, among others, two English delegates, Sir Humphry Rolleston, representing the Royal College of Physicians of London, and Dr. H. J. Waring, representing the Royal College of Surgeons of England; also a Scotch delegate, Dr. Norman Walker, representing the Triple Examining Board of Scotland. Referring to the rôle played by the American Medical Association in pedagogic and professional matters, Roussy and Desmarest say that it would doubtless sound strange to French physicians to hear a medical association spoken of in an article dealing with questions on medical education. They explain that the status of the American Medical Association can in no wise be compared with that of French scientific societies, which are not in a position to play so important a rôle. As regards the question of medical reciprocity between America and France, Roussy and Desmarest remark that it is desirable to encourage, as far as possible, the efforts being made at present by the United States to bring about greater uniformity between the medical education of France and that of the United States. They think that, in view of the changes that have been made of late in medical instruction in the United States, it will now be possible to introduce a system whereby the students and professors of the two countries may spend part of their time in the sister republic. The general impression that Roussy and Desmarest give in regard to medical education in the United States is that many changes and much improvement have been brought about during the last ten years. Medical instruction in America seems to be of a more elementary but of a more practical type than in France, in the best professional schools. All that now seems necessary is to develop further the plans that have been already set on foot, in order that complete uniformity may be brought about. The great mistake of the United States in the past has been the great multiplicity of medical schools with widely divergent courses of instruction. They state that the American Medical Association and the National Board of Medical Examiners have for many years been carrying on an extensive campaign against this state of affairs, and while much has been accomplished, a vigorous policy is still pursued.

Dedication of the Carnegie Library at the University of Paris

The Carnegie Endowment Fund has presented to the University of Paris a library of 2,000 volumes, which was recently dedicated at a function held at the Sorbonne. Hon. Hugh C. Wallace, ambassador of the United States, read the deed of donation and made the presentation speech. M. Honnorat, minister of public instruction, thanked the representatives of the Carnegie fund, in the name of the government. Senator d'Estournelles, chairman of the European bureau of the Carnegie fund, spoke in high praise of Andrew Carnegie's great work for humanity. M. Cestre, who is giving a course on American civilization in the philosophical faculty, and who is, at the same time, the adviser for American students, delivered a short address, in which he expressed his great satisfaction over the friendly mutual relations existing between the United States and France.

Death of Prof. Victor Carlier

The death of Dr. Victor Carlier, professor of the Faculty of Medicine at Lille, has been announced. Carlier was born in 1856. He took his medical course in Paris, where he had as teachers Tillaux and Guyon, the latter giving the final direction to his studies. He was appointed agrégé and later ordinarius on the Faculty of Medicine at Lille. Carlier may be said to have founded a veritable school of medicine and became one of the best known authorities in diseases of the urinary organs. During the war, Carlier, who had stuck to his post even after the German invasion, was deprived of his service by the Germans and at the end of the second year was deported as a hostage to the camp of Holgminden, where he suffered ill treatment at the hands of the German authorities for a period of eight months.

BELGIUM

(From Our Regular Correspondent)

Dec. 19, 1920.

The Mortality from Syphilis at Brussels

M. Bayet has presented to the Royal Academy the results of his calculations to establish approximately the mortality from syphilis at Brussels. He has found the official statistics useless in determining the mortality. Information must be gained in a roundabout way, and often information that is withheld must be considered more valuable than that which is given. The method he used consisted in picking out from the register of deaths for a given year the causes of death in which syphilis enters into account; for example, ataxia, paralytic dementia, certain types of meningitis, cerebral hemorrhage, mollities cerebri, organic diseases of the heart, angina pectoris, affections of the arteries, Bright's disease and cirrhosis of the liver. He endeavored to discover the average number of cases that were of syphilitic origin. In this manner he succeeded in establishing that in the city of Brussels in 1913 there were 284 fatal cases of syphilis, or 11 per cent. of the total mortality. For the purpose of comparison he gives the percentage of mortality in other infectious diseases: tuberculosis, 16 per cent.; typhoid, 1.2; measles, 1.2; pertussis, 0.7; diphtheria, 0.3, and scarlet fever, 0.3 per cent. The paramount importance of tuberculosis and syphilis as compared with other infectious diseases thus becomes evident, and the statement is justified that, next to tuberculosis, syphilis is the infectious disease that claims the most victims.

Diagnosis of the African Sleeping Sickness

At the Société belge de médecine tropicale, M. Broden discussed recently the various methods employed in the diagnosis of trypanosomiasis. He made comparisons between the results secured by the puncture of engorged lymph glands, examination of blood either direct or after centrifugation, and the examination of the spinal fluid. Three hundred and sixty-six negro patients, who had received no treatment as yet, were examined by these various procedures. The examination of lymph obtained by the puncture of lymph glands is the most rapid method to disclose the presence of trypanosomes. It gave a positive result in 87.7 per cent. of the cases; the examination of the blood in only 80.7 per cent.

Nevertheless the centrifugation of the blood constitutes a valuable method of examination and was indispensable in 7.7 per cent. of the cases. To reach a definite diagnosis the examination of the spinal fluid was necessary in 4.5 per cent. of the cases.

In the matter of treatment, Broden and Rodhain set forth the results of their experimentation in "L'arsenophénylglycine et son succédané dans les trypanoses humaines, et animales." This arsenical, which is No. 418 in the Ehrlich series, has given excellent results in experimentally induced infections in laboratory animals. It was inferior to certain other products in the treatment of the sleeping sickness. The writers describe the method of using it, the immediate action on the trypanosomes and on the human organism; also the remote or curative effect. They cite cases of grave intoxication and even death from its use. While they oppose the use of this arsenical in the treatment of patients in the advanced stages, they state that it exerts a good influence in producing a prolonged peripheral sterilization. They have used this substance combined with tartar emetic or with dyes, such as tryparosan and trypaflavin. The results were not manifestly better than with other combinations of drugs, notably atoxyl and tartar emetic. On animals infected with various trypanosomes, arsenophenylglycine had no effect. The trials with the substitute No. 559 were still less favorable. The writers reached the conclusion that these two products were not entitled to recognition as therapeutic arsenicals.

The Campaign Against Cancer

The campaign against cancer has occupied the minds of surgeons since ancient times, and it is becoming more and more evident that it is only through education of the public that the campaign can be crowned with success. The Société belge de gynécologie et d'obstétrique has issued to physicians and midwives this appeal:

> The mortality from cancer in this country (Belgium) is very great—greater than it need be when we consider the curative means that we possess at the present time. Seventy per cent. of all cancers are in women. If women would consult their physician in time they would, in our day and age, all be saved and would recover their health; but, owing to the unfortunate fact that this disease does not cause pain until a grave stage has been reached, women treat whatever symptoms they may have as of no importance and pay no attention to them until pain sets in. It is then very difficult to cure them. Every woman, married or unmarried, who discovers anything anomalous in her state of health should go to her physician for examination—no matter whether she feels sick or not. We wish to emphasize more particularly the anomalies that are likely to arise at the critical period in middle life. These require a minute examination by a physician, but we would call attention to the fact that cancer may occur at any age. The public should be put in possession of the knowledge that we possess sure means of curing cancer if treatment is begun in time. It is much to be desired that the general public understand this advice, and it is incumbent on physicians and midwives to disseminate these views far and wide.

Marriages

ROBERT MILLER GALLANT, Charlotte, N. C., to Miss Evelyn Lynch of Rutherfordton, N. C., December 15.

WILLIAM HIBBITTS to Miss Katherine William McCartney, both of Texarkana, Ark., December 29.

ALLAN MCLELLAN to Miss Elizabeth Helen Chambers, both of Casper, Wyo., September 14.

JOHN A. GATTERER to Miss Mary Louise Richey, both of New Albany, Ind., January 12.

CLYDE A. UNDINE to Miss Effie Donna Heighstedt, both of Minneapolis, December 30.

JOSEPH EIDELSBERG, New York, to Miss Bessie Strauss of Brooklyn, December 26.

THOMAS K. GALVIN to Miss Sarah W. Saxelby, both of Baltimore, January 3.

HERBERT L. LANGER to Miss Helen Stein, both of New York, December 29.

Deaths

Waller Holladay Dade, Manila, P. I.; Bellevue Hospital Medical College, 1889; aged 54; United States director-general of the bureau of prisons in the Far East; who served in the Spanish-American War as major and surgeon, Kentucky Infantry; died in Norfolk, Va., December 26, from heart disease.

William Allen Porter ● Chicago; Kansas Medical College, Topeka, 1899; Rush Medical College, 1901; aged 50; clinical professor of otology and rhinology in Loyola University School of Medicine, Chicago; captain, M. C., U. S. Army, and discharged, Feb. 6, 1919; died, January 8, from cerebral hemorrhage.

Edward W. English, Slayden, Texas; Memphis Hospital Medical College, 1890; aged 53; a member of the State Medical Association of Texas; local surgeon for the San Antonio and Aransas Pass Railway; died, December 10, from an overdose of morphin, self-administered, it is believed, with suicidal intent.

John Erasmus Harper ● Chicago; University of the City of New York, 1878; aged 69; emeritus professor of diseases of the eye in the College of Physicians and Surgeons, Chicago; at one time editor of the *Western Medical Reporter;* died, January 8, from myocarditis.

Ellsworth S. Ellis ● Manistee, Mich.; College of Physicians and Surgeons in the City of New York, 1876; aged 72; at one time president of the Manistee County Medical Society; city health officer for five years; died, January 2, from heart disease.

George M. Campbell, Halifax, N. S.; Bellevue Hospital Medical College, 1890; aged 59; professor of pathology and lecturer on diseases of children in the Halifax Medical College; president of the Halifax Board of Health; died, December 12.

Willis Parker Craig, Walpole, N. H.; Dartmouth Medical School, Hanover, N. H., 1906; aged 40; captain, M. C., U. S. Army, and discharged, June 28, 1919; was accidentally shot and killed while hunting, December 28.

Thomas Notley McLaughlin ● Washington, D. C.; George Washington University, Washington, D. C., 1882; aged 60; at one time president of the Medical Society of the District of Columbia; died, December 31.

Robert Joseph McGettigan ● Waipahu, Hawaii; Cooper Medical College, San Francisco, 1891; aged 61; physician for the territorial board of health for twenty-four years; died, July 14, from heart disease.

John Wallace Cook, Pendleton, Ind.; University of Louisville, Ky., 1879; aged 68; a member of the Indiana State Medical Association; died in Indianapolis, January 1, from cerebral hemorrhage.

Harvey P. Jack ● Hornell, N. Y.; College of Physicians and Surgeons, Baltimore, 1891; aged 55; at one time president of the New York State Railway Surgeons' Association; died, December 31.

Thomas C. Murphy, Biloxi, Miss.; Rush Medical College, 1868; aged 78; a member of the Thirty-First Illinois Infantry during the Civil War; died, December 31, from cerebral hemorrhage.

Joseph Ellis Messenger, New York; Bellevue Hospital Medical College, 1879; aged 68; medical director and assistant visiting physician to the Knickerbocker Hospital; died, January 5.

Malcolm Sumner Woodbury ● Clifton Springs, N. Y.; Jefferson Medical College, 1906; aged 39; superintendent of the Clifton Springs Sanitarium; died, January 6, from pulmonary embolism.

Robert G. Miles ● Newcastle, Pa.; Jefferson Medical College, 1895; aged 58; was found dead, December 10, from the effects of chloroform, taken with suicidal intent, it is believed.

William J. McCaw ● Providence, R. I.; College of Physicians and Surgeons, Baltimore, 1881; aged 65; for many years president of the state board of pharmacy; died, January 2.

Duncan Moore Leonard, Broome Center, N. Y.; Castleton (Vt.) Medical College, 1857; aged 83; a practitioner of Broome Center for sixty-three years; died, December 26.

George C. D. O'Neil, Saulte Ste. Marie, Mich.; University of Michigan, Ann Arbor, 1876; aged 82; died, October 24.

● Indicates "Fellow" of the American Medical Association.

John Calvin Little, Killarney, Man.; Western University, London, Ont., 1902; aged 47; died, November 29, from the effects of a fall from the fire escape of a Winnipeg hotel.

Ferdinand Brother, Beatrice, Neb.; Missouri Medical College, St. Louis, 1862; Jefferson Medical College, 1866; aged 87; a veteran of the Civil War; died, December 7.

Richard S. Schweitzer, Adamstown, Pa.; College of Physicians and Surgeons, Baltimore, 1881; aged 68; died at the Reading (Pa.) Hospital, December 26.

Robert D. Shearer, Walsh, Ont.; Detroit College of Medicine and Surgery, 1893; aged 53; was fatally crushed, September 22, by a falling limb of a tree.

James Henry Grant, Lynn, Mass.; Bellevue Hospital Medical College, 1883; aged 70; a member of the Massachusetts Medical Society; died, December 28.

Samuel Ayer Kimball, Boston; Harvard University Medical School, 1882; Boston University School of Medicine, 1883; aged 63; died, December 27.

Ardel C. Rogers, Cascade, Wis.; College of Physicians and Surgeons, Keokuk, Iowa, 1879; aged 77; a veteran of the Civil War; died, December 28.

Willis W. Oglesby, Cottage Grove, Ore.; Willamette University, Salem, Ore., 1877; aged 83; health officer of Cottage Grove; died, December 26.

Frank De Vilbiss ● Clyde, Kan.; Missouri Medical College, St. Louis, 1883; aged 61; former state senator; died, December 20, from pneumonia.

Robert B. R. C. Wallace, Lydia, S. C.; University of the City of New York, 1881; aged 68; died, November 27, from arteriosclerosis.

Seymour A. Woodworth ● Park Ridge, Ill.; Hahnemann Medical College and Hospital, Chicago, 1895; aged 51; died, January 9.

Levi Lewis, Charlevoix, Mich. (license, Michigan, years of practice, 1900); aged 81; died, December 29, from bronchopneumonia.

William Allen Bartlett ● New York; College of Physicians and Surgeons in the City of New York, 1881; aged 83; died, January 5.

George Knipe ● New York; College of Physicians and Surgeons in the City of New York, 1885; aged 64; died, January 5.

James Price Kennedy, Wingham, Ont.; Western University, London, Ont., 1891; aged 55; died, October 26, from myocarditis.

William T. McMillan, New Egypt, N. J.; College of Physicians and Surgeons, Baltimore, 1888; aged 52; died, December 17.

Otto F. Richter, White Sulphur Springs, W. Va.; Medical College of Virginia, Richmond, 1884; aged 57; died, November 10.

Bennet V. Caffee, Winter Haven, Fla.; Rush Medical College, 1899; aged 45; died, January 3, from cerebral hemorrhage.

Frederick Louis Fuchs ● New York; Eclectic Medical College of the City of New York, 1881; aged 78; died, December 3.

Richard Kingsman, Washington, D. C.; Howard University, Washington, D. C., 1886; aged 65; died, December 31.

Oliver O. Wosencraft, Holly Springs, Ark.; Missouri Medical College, St. Louis, 1876; aged 71; died, January 2.

Sheldon Arthur Moran, Toronto, Ont.; University of Toronto, Ont., 1905; aged 42; died, December 21.

Harrison Free Cooper ● Baltimore; University of Maryland, Baltimore, 1902; aged 41; died, January 3.

Frederick R. Baldwin, Minneapolis; Bellevue Hospital Medical College, 1886; died, November 12.

James T. Phillips, Glenmora, La.; ~~University of Alabama, Mobile, 1880, aged 60; died, December 26.~~

James J. Newcomb, Westwood, N. J.; Yale University, New Haven, 1875; aged 70; died, January 1.

John B. Hall, Toronto; Homeopathic Medical College of Missouri, 1860; aged 83; died recently.

Frank Putnam Boyd, San Jose, Calif.; Rush Medical College, 1901; aged 41; died, December 7.

George W. Brandon, Milford, Neb.; Rush Medical College, 1871; aged 73; died, October 31.

Hiram P. Neyman, Saltillo, Ind. (license, Indiana); aged 75; died about December 28.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

SPIROCIDE NOT ADMITTED TO N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. PUCKNER, Secretary.

"Spirocide" (The Spirocide Corporation of New York) is advertised as a new and successful treatment of syphilis by fumigation and inhalation. According to the information presented to the Council, Spirocide is a mechanical mixture of metallic mercury 25 per cent., copper sulphate 25 per cent., cypress cones 20 per cent., henna 20 per cent., nut gall 5 per cent., and dried pomegranate 5 per cent. It is supplied in the form of greenish-gray tablets weighing about 10 gm. each, and containing, therefore, about 2.5 gm. (about 38 grains) of mercury. It is sold in packages of six tablets.

The following directions for its use are contained in a pamphlet recently distributed:

"Spirocide is administered by means of fumigation and inhalation. The patient is disrobed to the waist and placed in a light chair, preferably with arms. A pastil or tablet of Spirocide is placed on a small plate, or open receptacle, after being ignited by holding in a gas or alcohol flame for a minute or so until it begins to smoulder. The plate with the burning Spirocide is then placed on the floor between the patient's feet or just under the chair. A small shelf or platform between the lower rounds of the chair is an excellent location for the plate containing the burning mass. When all is in position a sheet should be thrown over the patient and arranged to enclose the whole. The patient should breathe naturally and inhale the vapor, which will rise and fill the canopy surrounding him. The treatment will require 15 to 30 minutes, or until the Spirocide is burned up. The patient may complain at first of a slight choking sensation, and there may be some tendency to cough. This can be removed by raising the sheet long enough to let in a little clear air. The eyes should be closed or lightly bandaged to avoid smarting."

Experiments conducted in the A. M. A. Chemical Laboratory show that Spirocide, when ignited, burns slowly with consequent volatilization of mercury. The several organic constituents serve as fuel and the copper sulphate possibly acts as a regulator of the combustion. During the burning process the cypress cones, henna, etc., are consumed but most, if not all, the copper remains behind, the mercury only being vaporized. It is asserted in the advertising pamphlet that Spirocide is indicated in all stages of syphilis, primary, secondary and tertiary, and in all its complications or sequelae. In these varying conditions one tablet daily or every other day is recommended until six treatments have been taken, though it is stated that "occasionally, depending on the severity or the duration of the disease, it may be wise to give nine treatments, the last three at intervals of two, three or more days."

Some of the results which it is claimed are obtained with Spirocide are:

"At the completion of this course of treatment with Spirocide, all signs or evidences of syphilis are removed, and in ten days to three months all Wassermann tests prove negative. Any further treatment than the original course of fumigations are rarely needed. Wassermann's will be found uniformly negative after a period which, according to the patient, may vary from ten days to three months. These results have been obtained in cases in which Salvarsan and kindred preparations have been employed without the slightest benefit."

In a letter to the Council the "scientific observer" of the Spirocide Corporation declared:

"We do not claim that the vaporization method is new. We do claim, however, that this combination of mercury produces more rapid volatilization, certain absorption and undoubted effect than any form of mercury administered by any method known to science without the usual danger. That this is so we are willing to prove by comparison with other methods both by ourselves and many observers scattered over the United States. . . ."

To determine the validity of the claims made for Spirocide, the Corporation was asked to present the evidence which it offered. In reply, the corporation's "scientific observer," Dr. J. Lewengood, submitted 83 case reports from a number of different observers, including those from military hospitals

and a state institution, and also a reprint of an article published by him in the *New York Medical Journal*, Feb. 21, 1920, wherein were reported eight cases which received "Spirocide Treatment." In no case were controls with other methods of mercury administration carried out.

This material the Council sent to two recognized syphilographers for an opinion. One of the consultants reported that of the 83 cases, 20 dealt with patients who had also received arsphenamin medication and, therefore, these 20 cases could not be considered as evidence concerning the value of Spirocide. As to the remaining cases, he found on the whole that the history and data furnished were far from sufficient to warrant the claims made. In many of the cases emphasis was laid on the Wassermann test, as though this test were the only thing to be considered in a case of syphilis. He pointed out that in one case the reaction changed from negative to strongly positive after six treatments and that in several cases the phenomena reported cannot be explained by anything else than a desire to get a negative blood test. For example, one case had Spirocide treatment and a Wassermann, 1 plus, 55 days after; the author then reports that 19 days later the reaction had become negative and, therefore, the change must be due to Spirocide. In several of the cases reported it is even questionable if the patients were syphilitic. The consultant concluded that the evidence submitted by the Spirocide Corporation failed to prove the claims made for Spirocide. He pointed out on the other hand that patients readily become salivated from the use of Spirocide, often after 8 to 10 treatments.

The second consultant replied that in his opinion the claim that Spirocide produces more "undoubted effect than any form of mercury administered by any method known to science without the usual danger," was not substantiated. He believed that it was not as effective as some other methods, that the dosage is not as exact and that, therefore, it is not as free from danger when the drug is pushed.

The Council's two consultants were also asked whether or not, in their opinion, the administration of mercury by inhalation is a method which the Council should endorse to the extent of recognizing a preparation based on this principle. This same inquiry was also sent to the members of the editorial board of the *Archives of Dermatology and Syphilology*. Five replies were received. One advised a thorough study of the different methods of administering mercury by inhalation. The other four were opposed to such recognition on the ground that as the dosage is not exact the effects, therefore, are not certain.

In consideration of the opinions expressed by its consultants, the Council declared Spirocide inadmissible to New and Nonofficial Remedies because (1) the claims made for it are unproved and unwarranted, (2) the routine use of an inexact method for the administration of mercury is detrimental to sound therapy and (3) the name is not descriptive of its composition, thus failing to remind the physician who uses these pastils that he is administering metallic mercury.

HELMITOL OMITTED FROM N. N. R.

Report of the Council on Pharmacy and Chemistry

Helmitol is hexamethylenamin methylencitrate. It was introduced with the claim that it was superior to hexamethylenamin—which acts in acid fluids only—in that it is equally efficient whether the urine is alkaline or acid.

In 1918 the Bayer Company, which then marketed the product in the United States, was notified that the Council questioned the claims made for Helmitol and desired evidence to substantiate them. In 1919 the same notification was sent the Winthrop Chemical Company, which in the meantime had secured control of the product. Pending the submission of evidence, the Council continued the acceptance of Helmitol for New and Nonofficial Remedies with the statement that the actions and uses of hexamethylenamin anhydromethylencitrate were those of hexamethylenamin.

W. A. PUCKNER, Secretary.

The following report on Helmitol was made by the referee in charge of hexamethylenamin compounds and preparations, adopted by the Council and sent the Winthrop Chemical Company:

"Helmitol is a compound of anhydromethylencitric acid and hexamethylenamin. It was introduced with the claim that it would be antiseptic even in alkaline urine. The Council did not entirely trust the evidence, but continued to list Helmitol in N. N. R., merely as a salt of hexamethylenamin, until satisfactory data should become available. These have now been furnished by Hanzlik (*Journal of Urology* 4:145) who has shown that:

"1. The alkalinity required to split off formaldehyd from anhydromethylencitric acid is greater than exists in the urine, even in advanced ammoniacal fermentation.

"2. Even if any formaldehyd were liberated in ammoniacal fermentation, it would at once become inactive by combining with ammonia.

"3. Urine after the administration of anhydromethylencitric acid actually putrefies readily.

"4. Less than 5 per cent. of the anhydromethylencitric radicle reaches the urine, the remainder being destroyed in the body.

"The only reason for the existence of Helmitol was this claim of antiseptic action in alkaline and putrefying urines. Since this has been disproved, there remains no reason for retaining Helmitol in N. N. R.; on the contrary, its retention would only tend to continue the fallacy on which it was based.

"It is, therefore, recommended that Helmitol be no longer listed with New and Nonofficial Remedies, and that this report be published, after the usual submission to the manufacturers."

In accordance with the recommendations of the report, the Council has directed the omission of Helmitol from New and Nonofficial Remedies and has authorized the publication of this report.

Correspondence

LABORATORY PROBLEMS OF BLOOD TRANSFUSION

To the Editor:—Please publish the following correction to my paper with the above title, which appeared in THE JOURNAL, Jan. 8, 1921, p. 88:

The second sentence at the top of the second column of page 90 should read: "Nevertheless, Groups I and II predominate, and collectively constitute about four fifths of the race."

In Table 4 in the same column, the per cent. figures opposite Groups II and III should be transposed.

These changes are necessary in order to place my report in conformity with the recommendations of the Committee on Isohemagglutination appearing in the same number of THE JOURNAL, page 130. Theoretically, the change from Moss to Jansky classification would permit of transposition of Groups II and III as well as Groups I and IV; but as those who have worked with the Jansky system have reported a greater number of individuals in Group II than in Group III, and the same is true of those who have worked with the Moss classification, it is obvious that these groups remain with the same in both classifications, and only Groups I and IV are transposed.

H. T. KARSNER, M.D., Cleveland.

PROHIBITION, "BRIEFLY AND MILDLY" REVIEWED

Gentlemen:—Upon the receipt of your request I am reconsidering; my check for 1921 please find.

Permit me to briefly and mildly state my reason; it is your part in imposing upon us the tragedy of prohibition. Already it spells national disintegration. It is a black pall of tyranny masquerading as reform. An aggregation of sleek hypocrits took advantage of the war to force upon the American people the adoption of this bastard child of mohammedism. We

now find ourselves the junior of that renowned triumvirate, Turkey, Russia and the United States. Surely an exalted companionship. We shall now find our private homes subject to search by long-nosed prohibitionists. Lexington and Bunker Hill have been forgotten. The violation of the sacred privacy of the home by King George Redcoats, was the chief cause of the Revolutionary War. Already the results of its operations give the direct lie to its advocates. They heralded from the housetops that it would remove 90 per cent. of crime. It has increased crime everywhere. Its advocates lied and they knew they lied. It will, if continued ten years, create a nation of dopes. Coca Cola will be the chief offender. Murder, suicide, perjury, private drunkenness will double their highest maximum record in ten years. I am an advocate of temperance. Temperance and self-denial must be inculcated into the people. You can't legislate these principles into the people. The solution is a moral one. You prohibitionists brand the maker of alcohol for beverage purposes a criminal. God made, drank and dispensed alcohol. Was God a criminal? I match against Hobson, Anderson, Wheeler, et al. Almighty God. They or God, which? There is no purpose in arguing this question with a doctor who thinks or thinks he thinks that alcohol has no place in medicine. Such a one is either a liar, a knave or a fool; I think all three. Now, Mr. Editor, if you are four-square you will publish this letter exactly as written here, or accepting the indictment plead nolo contendere.

CHARLES J. CUMMINGS, M.D., Williamsport, Pa.

[COMMENT.—Being nothing if not "four-square," we "publish this letter exactly as written here."—ED.]

RESEARCHES IN HELMINTHOLOGY AND PARASITOLOGY

To the Editor.—In 1904, the Smithsonian Institution published the "Researches in Helminthology and Parasitology," by Joseph Leidy, 1844-1891, among its miscellaneous contributions. This work has been out of print for a number of years. The issue was gratis. As there were a number of complimentary copies distributed to those who may have no use for them, and as the work is in great demand from research laboratories in comparative pathology, I should be glad to receive copies from owners who may feel disposed to contribute to the work of those engaged in similar lines of investigation.

JOSEPH LEIDY, JR., M.D.,
1319 Locust Street, Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SIMILARITY BETWEEN VITAMINS AND HORMONES

To the Editor:—From what I have read in the editorial columns of THE JOURNAL and elsewhere, I have been greatly impressed with the striking similarity which appears to exist between the characteristics of vitamins and hormones. The question has come to me as to whether or not the vitamins are the "internal secretions" of vegetal life; are the two substances one and the same thing in effect: vitamins the hormones of vegetal life, and hormones the vitamins of the animal world?

R. J. MIDGLEY, M.D., Buckley, Ill.

ANSWER.—The resemblances between those heretofore unidentified essential components of the diet or properties of foods at present designated by the term "vitamins," and hormones, have been recognized by various investigators. Thus, Lusk reminds us, in his "Science of Nutrition" (Philadelphia, W. B. Saunders Company, 1917, p. 378) that "Lafayette Mendel first suggested the use of the word 'hormone' in connection with the vitamins. Gowland Hopkins adopts the term 'exogenous hormones.' The expression 'food hormones' would also be exactly descriptive of the nature of these substances." In this country, Voegtlin and Myers (*Am. J. Physiol.* **49**:124, 1919; *J. Pharmacol. & Exper. Therap.* **13**:301 [July] 1919) have argued for the close similarity if not actual identity of the best known hormone, pancreatic secretin, and the antineuritic vitamin obtainable from yeast. According to them, secretin preparations relieve to some extent the neuritic symptoms induced in animals by deficient diets; and antineuritic vitamin preparations stimulate the flow of bile and pancreatic juice after injection into dogs. A yeast vitamin preparation which had lost its curative properties for avian polyneuritis was devoid of any stimulating effect on pancreatic secretion and bile flow. In Europe, other investigators have also maintained that vitamin B preparations made from vegetables promote the flow of various digestive secretions, thus resembling what one would expect of a succagogic hormone like gastrin or secretin. Still other investigators, however, prefer to think of the vitamins as analogous to enzymes in their mode of action, although an exact comparison fails in view of the comparative heat stability of some of the vitamins. One may equally well think of the vitamins as representing an indispensable integral part of active living cells, in which event they would have a significance comparable with that of any structural unit, such as lipoids and inorganic salts. Let us frankly admit that we know too little about either vitamins or hormones at present to make any hypothesis defensible or even worth while. In the words of a distinguished publicist, in the case of vitamins we must "first get the facts."

TANLAC

To the Editor.—Has there ever been anything published by the Council on Pharmacy and Chemistry on "Tanlac?" If so, will you kindly state the issue in which it appeared. Please omit my name.

——, N. Y.

ANSWER.—The Council on Pharmacy and Chemistry does not, generally speaking, take up for consideration nostrums that are sold direct to the public. It has plenty to do in giving the profession the facts regarding those nostrums that are sold, nominally at least, for physicians' prescription purposes. "Tanlac" was investigated by the Propaganda department, aided by work done in the A. M. A. Chemical Laboratory. The results were published in THE JOURNAL, June 5, 1915. Another article appeared on the same nostrum in THE JOURNAL, Feb. 26, 1916, and a more extended one in THE JOURNAL of June 2, 1917. All of this matter has been reprinted in the pamphlet "Miscellaneous Nostrums (Edition 4, price 20 cents) in which also appears an article on "Tanlac" written by Mr. Samuel Hopkins Adams for the New York *Tribune*. The Association's chemists reported, in effect, that Tanlac is a wine containing 17 per cent. of alcohol to which has been added some bitters, a small amount of laxative and some glycerin.

TREATMENT OF PSORIASIS WITH NONSPECIFIC PROTEIN AND BY AUTOSERUM METHOD

To the Editor:—1. Please describe in greater detail the treatment of psoriasis by protein shock according to the method of Dr. Cassio de Rezende, abstracted in THE JOURNAL, Oct. 16, 1920, p. 1099. 2. What is the procedure in the treatment of psoriasis by the autoserum method?

E. F. K., New York.

ANSWER.—1. De Rezende used horse serum to induce protein shock, because other methods of treatment had failed. It is known that psoriasis sometimes disappears after an intercurrent acute febrile disease, and also that horse serum injected into human beings sometimes induces a powerful general reaction with rise of temperature and with reactions in the skin. He hoped, by inducing a reaction in the skin, to modify conditions so that the psoriasis would be thrown off. He injected 10 c.c. of normal horse serum into the man's abdominal wall, but no effect was apparent. Two days later he repeated the injection with 20 c.c. A chill followed, with fever up to 38.8 C. (101.8 F.) and pains in the trunk and head, with much malaise and thirst. These symptoms kept up for six days, the temperature on one day reaching 103 F., but then the fever declined and the crusts peeled off, the lesions disappearing remarkably fast, like those of syphilis under vigorous arsphenamin treatment. In eight or ten days after the second injection the skin had cleared up, and no lesions are to be seen in the reproduction of the photograph taken at the end of the month.

E. F. K. is also referred to an article by Scully entitled "Intravenous Foreign Protein in the Treatment of Psoriasis," which appeared in THE JOURNAL, Nov. 17, 1917, p. 1684.

2. In the autoserum method, 50 c.c. of blood is withdrawn from the cubital vein, the blood is centrifuged, and when the serum is thoroughly separated, it is drawn off with a syringe and injected without delay. The amount of serum obtained varies between 15 and 25 c.c. The time required for the procedure is usually a half hour or less. The following references may be consulted:

Gottheil, W. S., and Satenstein, D. L.: The Autoserum Treatment in Dermatology, THE JOURNAL, Oct. 3, 1914, p. 1190.

Fox, Howard: Autogenous Serum in the Treatment of Psoriasis, THE JOURNAL, Dec. 19, 1914, p. 2190.

Willock, J. S.: Autoserum Therapy in the Treatment of Psoriasis and Other Skin Diseases, THE JOURNAL, July 3, 1915, p. 14.

LACTATION

To the Editor:—I am making a search of the literature of lactation in the woman, covering a period ten years back, and have been disappointed at the meager results found so far. May I ask your help in running down something definite along this line? Several editorials of THE JOURNAL have been helpful and suggestive; but I want references to the actual work that has inspired them, and it occurs to me that you may be able to help me.

FRANK HOWARD RICHARDSON, M.D., Brooklyn.

ANSWER.—The Quarterly Cumulative Index for the last five years lists the following articles bearing on lactation in women:

Seifert, M. J.: Abnormal Lactation: Study of Literature, THE JOURNAL, June 12, 1920, p. 1634.

Seifert, M. J.: Eczema with Prolonged Lactation: Case Report with Comprehensive Review of the Literature, *Internat. Clin.* **2**: 89, 1920.

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TREATMENT OF ARTHRITIS DEFORMANS

To the Editor:—I have a patient who is developing arthritis deformans. Everything has been tried to alleviate her condition, but so far we have met nothing but discouragement. I have been advised to try two other measures: electrotherapy and sending the patient to Arizona (Phoenix).

Will you kindly give me your opinion as to either method of procedure, and is Arizona the proper place for arthritic patients?

S. S. L., Connecticut.

ANSWER.—The present knowledge of the cause of arthritis deformans includes primarily the presence of localized foci of infection with resulting bacteremia, and an associated faulty metabolism characterized by a lowered carbohydrate tolerance. The indicated treatment involves eradication of existing foci of infection, and a diet plentiful in amount, but with a moderate content of carbohydrates. If the disease is in the febrile stage, absolute rest is indicated. At the proper time there should be rational application of physiotherapy—massotherapy, hydrotherapy, electrotherapy and mechanotherapy, and calisthenic and other graduated active exercise. No specific influence may be expected from climatotherapy. Indeed, a desirable climate (Arizona or any other) without the facilities for treatment mentioned would be contraindicated. Hospital management is advisable. There are no specific remedies: either drugs, vaccines or serums.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 1. Sec., Dr. Harry C. Vighne, Juneau.

CALIFORNIA: Los Angeles, Feb. 14-17. Sec., Dr. Charles B. Pinkham, 127 Butler Bldg., San Francisco.

CONNECTICUT: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

KANSAS: Topeka, Feb. 8. Sec., Dr. Henry A. Dykes, Lebanon.

MAINE: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

MASSACHUSETTS: Boston, March 8-10, Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.

NATIONAL BOARD OF MEDICAL EXAMINERS, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEW HAMPSHIRE: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

NEW YORK: New York City, Albany, Syracuse and Buffalo, Jan. 24-27. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

VERMONT: Burlington, Feb. 8-10. Sec., Dr. W. Scott Nay, Underhill.

WYOMING: Cheyenne, Feb. 7-9. Sec., Dr. J. D. Shingle, Cheyenne.

POSTGRADUATE EDUCATION IN GLASGOW

Plans for a better reorganization of graduate medical teaching in Glasgow were made early in 1914, and in March of that year a general commission was appointed to have the matter in charge. The breaking out of the World War required that its work be held in abeyance. In February, 1919, however, following a meeting of the commission with the medical faculty of the University of Edinburgh, the work was again taken up. As a result of the commission's work, postgraduate teaching in Glasgow is to be placed in charge of a central organization made up of ten representatives of the various teaching institutions, and eight representatives from among the teachers taking part in postgraduate instruction. It is proposed to provide practitioners' courses of from four to six weeks' duration; weekly demonstrations for practitioners in Glasgow and the neighborhood, and advanced and comprehensive courses of not less than six months' duration, as well as to provide for preparation in the specialties and research work.

Alaska September Examination

Dr. Harry C. De Vighne, secretary, Alaska Board of Medical Examiners, reports the written examination held at Juneau, Sept. 7, 1920. The examination covered 10 subjects and included 110 questions. An average of 75 per cent. was required to pass. One candidate was examined and passed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Illinois		(1917)	91

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of New Zealand		(1916), (1917)*	Washington

* Graduation not verified.

District of Columbia October Examination

Dr. Edgar P. Copeland, secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, Oct. 12-14, 1920. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 19 passed and 1 failed. One candidate was licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University		(1920)	77.6, 79.8
Georgetown University	(1918) 79, 81.3, (1920) 76.8, 79.6, 80.8, 86.1, 90.7	(1917)	87.3,
George Washington University		(1920)	75.5, 81.1, 83.7, 84
University of Maryland		(1918)	77.6
University of Minnesota Medical School		(1920)*	80.0
University of Pennsylvania School of Medicine		(1919)	77.7
University of Virginia		(1919)	89.5
McGill University		(1919)	86.8

College		Year Grad.	Per Cent.
	FAILED		
Meharry Medical College		(1920)	74.2

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Medical College of Virginia		(1914)	Virginia

* Diploma withheld pending completion of hospital internship.

Arizona October Examination

Dr. Ancil Martin, secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Oct. 5-6, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 13 candidates examined, 8, including 1 osteopath, passed, and 5, including 1 osteopath, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles		(1916)	75.2
Northwestern University		(1919)	77.1
Tulane University		(1920)	75.8
Johns Hopkins University		(1908)	90.9
Tufts College Medical School		(1898)	94.3
John A. Creighton Medical College		(1907)	75.6
Queen's University Faculty of Medicine, Kingston		(1909)	82.9
	FAILED		
College of Physicians and Surgeons, Chicago		(1910)	68.3
Hahnemann Medical College		(1915)	60.6
St. Louis College of Physicians and Surgeons		(1920)	52.1
Memphis Hospital Medical College		(1898)	48.7

Colorado October Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, Oct. 5, 1920. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 24 candidates who took the physicians and surgeons examination, 4 passed, and 20, including 3 osteopaths, failed. Twenty-two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Kansas City University of Physicians and Surgeons		(1920)	81.3
St. Louis College of Physicians and Surgeons		(1920)	76.1, 79.5
Vanderbilt University Medical Department		(1916)	75.4
	FAILED		
Kansas City College of Medicine and Surgery		(1920)	46.6
St. Louis College of Physicians and Surgeons (1917) 50.6, (1918) 47.6, (1919) 66.3, (1920) 41.9, 48.5, 54.3, 57, 59.1, 61.3, 63.7, 68.3, 69, 72.9, 73.6			
University of West Tennessee		(1918)	53
Baylor University College of Medicine		(1920)	71.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago Homeo. Medical College		(1892)	Nebraska
Chicago College of Medicine and Surgery		(1913)	Wyoming
Rush Medical College		(1911)	Illinois
University of Illinois		(1915)	Minnesota
Keokuk Medical College		(1898)	Nebraska
Louisville Medical College		(1894) Texas, (1904)	Oklahoma
Tulane University of Louisiana		(1912)	Kansas
College of Physicians and Surgeons, Baltimore		(1891)	Tennessee
Harvard University		(1919)	Mass.
Beaumont Hospital Medical College		(1888)	Missouri
St. Louis Homeo. Medical Coll. of Missouri		(1888)	Missouri
Washington Univ. Med. School		(1917), (1919), (1920)	Missouri
John A. Creighton Med. Coll.		(1900) North Dak., (1910)	Nebraska
Columbia University		(1900)	New Jersey
New York Homeo. Medical College and Hospital		(1889)	Iowa
University of Pennsylvania School of Medicine		(1914)	Penna.
University of Nashville		(1909)	Tennessee
University of Tennessee Medical Department		(1892)	Missouri

Iowa September Examination

Dr. G. H. Sumner, secretary, Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Sept. 15-17, 1920. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Six candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University		(1920)	89.2
University of Louisville Medical Department		(1912)	77.6
Cornell University Medical College		(1919)	87.3
New York Homeo. Med. College and Flower Hospital		(1915)	90.2
Jefferson Medical College		(1920)	90.9
Trinity Medical College		(1903)	87.3

Book Notices

DIE DEUTSCHE CHIRURGIE IM WELTKRIEG 1914 BIS 1918. Herausgegeben von August Borchard, Geh. Medizinalrat, Professor in Berlin-Lichterfelde, und Victor Schmieden, o. ö. Professor der Chirurgie, Univ.-Klinik, Frankfurt a. M. Cloth. Two volumes. Second edition of "Lehrbuch der Kriegs-Chirurgie." Leipzig: Johann Ambrosius Barth, 1920.

This is a composite work, of which the first edition appeared early in 1917. The appearance of this, the second edition, the editors state in the preface, was unavoidably delayed, and in the meantime the war had come to a sudden and unexpected end. However, they did not think the work superfluous for the reason that for many years yet surgeons will be busy with the results of war injuries.

War surgery is defined as accident surgery, and the principal difference between it and peace surgery lies in the fact that in war surgery the wounded do not remain in the care of one person, but physician and hospital are constantly changing, the patient passing through all stages from the battlefield to his home. The adjustment of the principles and practice of surgery to war conditions is the chief task of the surgeon.

No chapter on war surgery is of greater significance as indicating medical progress than that concerning the treatment of infected wounds. The following quotation, therefore, is of interest: "It seems like a tragic comedy (Treppenwitz) of medical science that surgery, which before the war, from the heights of its aseptic tower viewed with contempt the obsolete antiseptics, should return contritely to the old disinfectants, such as chlorin and carbolic acid, the first time that the task was again presented of treating badly infected wounds in large numbers." The Carrel-Dakin method was tried as soon as it became known, but its use was considered impossible where there were many wounds, and ordinarily the technic was too time-consuming and too laborious. It is claimed that "a disadvantage [of the Carrel-Dakin treatment] is the excessive use of bandage material and the penetrating odor of chlorin which pervades Dakin-treated patients even in otherwise well-aired rooms."

The infiltration of the tissues surrounding a wound with a dilute solution of vuzin, a quinin derivative, as a prophylactic measure against infection is lauded, but, after all, it is stated that the value of the method is not yet established.

Concerning nerve suture, the results in cases observed for ten months or more show nearly 60 per cent. failures. The percentage of successes was much greater in nerves of the upper extremity than in those of the lower extremity. The frightful mortality rate of gunshot wounds of the abdomen was between 92 and 93 per cent., exclusive of those who died on the field. Most of the German surgeons claim never to have seen a case of spontaneous recovery when the intestine was injured, and believe, therefore, that every recovery following an operation is a life saved. That very few were saved is evidenced by the high mortality rate.

There are two volumes to the work, the first dealing with general and the second with special subjects. As a report of the surgery of the great war, as viewed by "the other side," the work is both interesting and instructive.

FUNCTIONAL NERVE DISEASE. An Epitome of War Experience for the Practitioner. Edited by H. Crichton Miller, M.A., M.D. Cloth. Price, $4.50. Pp. 208. New York: Oxford University Press, 1920.

The preface states that "the object of this volume is to present to the medical practitioner a simple and concise picture of the functional neuroses of war-time in such a manner that he may be able to apprehend the outstanding lessons taught by the experience of the Great War in this department of medicine," and this object is fairly well attained. The book is made up of twelve chapters by eleven authors, each chapter a discrete essay. Three relate to the physical factor (physical etiology, differential diagnosis, physical treatment); four to the hysterical factor (mechanism of hysteria, treatment by suggestion and persuasion, repression and suppression, regression); two to the anxiety factor (the mother complex, psychanalysis), and three to the man-

agement of the neurotic (institutional, individual, summary). The exposition of each subject is excellent, but the general practitioner will have some difficulty in adjusting values and in selecting from the mass of advice the treatment for a given case. The summary, however, by William McDougall, is an exceedingly good digest of the whole matter. Indeed, if one will read this chapter (Chapter XII) first, he will find the others more readily digestible. For a small book, this work contains a deal of information and abundant ideas. No one can read it without having his vision of the psychoneuroses widened, his grasp of an elusive subject made firmer, and his usefulness as a practitioner increased.

DIAGNOSTIK UND THERAPIE DER KINDERKRANKHEITEN. Mit speziellen Arzneiverordnungen für das Kindesalter. Ein Taschenbuch für den Praktischen Arzt. Von Prof. Dr. F. Lust, Oberarzt der Universitäts Kinderklinik in Heidelberg. Second edition. Price, 70 marks. Paper. Pp. 471. Berlin: Urban & Schwarzenberg, 1920.

This is a book for practicing physicians, as its size implies. It is therefore greatly condensed. The first part of the book consists of a short treatise on the normal development of the child, and contains all the essential features. This is followed by a cursory consideration of breast and artificial nourishment, and this in turn by several chapters on the diagnosis and treatment of the various diseases classed according to systems of the body. The salient features of each and its principal diagnostic points are brought out. The therapeusis is seldom more than a suggestion of what can be done. The second part consists of an alphabetical list of drugs with their dosage and the principal uses to which they are put; a short chapter on poisons, and an extensive list of German institutions for the care of children. There is no similar book in English. Taken by and large, it contains much useful information. This is especially true of the diagnostic points and list of drugs.

ALTITUDE AND HEALTH. By F. F. Roget, Professor in the University of Geneva. Cloth. Price, $5. Pp. 186. New York: E. P. Dutton & Company, 1919.

Three lectures delivered in London in 1914 for the Chadwick Trust furnish the text for this book. The first lecture discusses climate, Alpine and northern; the second takes up the air at altitudes, and the third is devoted to a discussion of sunlight and sun heat. The author is not a physician, but his words are none the less enlightening for the medical man. He is an advocate of the healthful effect of cold, altitude and sunlight, and he adduces much evidence in support of his contentions, even going so far as to declare that in war a northern people will always prove victorious when in combat with a southern people. He asserts that all great deeds have been done by people from the North—and even health is best in the North. Much space is devoted to the discussion of the sunlight treatment of tuberculosis. On the whole, the book is well written and readable; the statements of fact are generally correct, and the author's views are those held by most medical men as to the wholesome effect of cold and sunlight. The book can be commended to both physician and layman.

TASCHENBUCH DER MAGEN- UND DARMKRANKHEITEN. Von Dr. Walter Wolf, dirig. Arzt der inneren Abteilung am Konigin-Elisabeth-Hospital, Berlin-Oberschöneweide. Second edition. Paper. Price, 20 marks. Pp. 199, with 18 illustrations. Berlin: Urban & Schwarzenberg, 1920.

The majority of taschenbücher and handbücher that have come from the German press during recent years have been rather large volumes. The present book, however, can be readily carried in one's coat pocket. The first hundred pages are devoted to a consideration of methods of diagnosis, such as history taking, physical examination and laboratory work. For a clear and concise description of the laboratory methods and the important points of interest obtained by roentgen examination of the stomach and intestine, nothing better could be desired. That portion dealing with clinical disturbances of the stomach and bowel must necessarily be cramped, as the whole subject is covered in approximately eighty pages. It is unfortunate that greater detail could not have been given to some of the subjects. On the whole, this little book serves its purpose as an introduction to the subject and as a simple manual for the student about to begin the study of gastrointestinal diseases.

Medicolegal

Puncture by Surgeon of Artery Out of Place

(Aetna Life Ins. Co. v. Brand (U. S.), 265 Fed. R. 6)

The United States Circuit Court of Appeals, Second Circuit, in affirming a judgment in favor of plaintiff Brand, on a policy of accident insurance issued by the defendant company, says that the plaintiff had a hernia and voluntarily submitted to an operation by a surgeon whose skill was not impugned. While the surgeon was suturing the incision usually made in such cases, his needle pricked the deep epigastric artery, which in such an operation as was this is not exposed to view. The surgeon used his needle in the usual way, and put it exactly where he intended to put it; but the epigastric artery was not where such arteries are in the usual or normal man; therefore his artery was touched. The puncture was closed, the operation for hernia concluded, and afterward testified to as having been successful. Some time after the operation, however, one of Brand's legs became gangrenous, and was amputated. By testimony acceptable to the jury, the reason for the gangrene was that the surgeon's needle caused a blood clot in the epigastric artery; that clot passed on and into the artery supplying the leg, and nature failed to dissolve or absorb it, wherefore the leg below the arrested clot received no nourishment and gangrene ensued. The plaintiff's insurance was "against loss resulting directly and independently of any and all other causes from bodily injuries effected solely through external, violent and accidental means," with the further provision that the policy did not "extend to or cover any accidental bodily injury caused or contributed to, directly or indirectly, by sickness or disease." The jury was instructed, in substance, that if the gangrene of the plaintiff's leg and the consequent necessary loss of the latter, was caused by the pricking of the artery and ensuing blood clot, the leg was lost by external, violent and accidental means; and it was further said that there was no evidence that Brand's hernia was "caused or produced by any sickness, or accompanied by any sickness."

It was urged that the last statement gave the jury the impression that hernia is not a disease. But the court does not think that there was any injurious error. Assuming that hernia is, or may be, a disease, Brand's hernia was not a cause which produced or contributed to the pricking of his artery, but a condition which exposed him to that possibility. There was no evidence from which any jury could have found as a fact that his hernia caused the pricking of his artery. Such a verdict would have been as farfetched as to find that, had the ceiling fallen while he lay strapped to the operating table, the hernia that brought him to the table caused or contributed to the injury produced by the falling plaster.

The court has no doubt that the bodily injury was effected solely by violent and external means. That the degree of violence is immaterial is fundamental, and even an expected and usual force may be violent enough to injure.

The point in this case was whether, on the evidence as established by the verdict, Brand's leg was lost by accidental means, and since the jury established the causal connection between the pricked artery and the lost leg, the question became this: Was the surgeon's puncture accidental? Every suggestion, and the court thinks every conceivable, objection to answering this question in the affirmative, was summed up in the perfectly true statement that the surgeon put his needle just where it ought to have gone, and injury resulted solely because the artery was where it ought not to have been. It makes no difference that the impact or force preceding the injury is designed by the person insured. And all the cases agree that, in construing this clause so long found in accident insurance policies, it is the cause and not the consequence that must be regarded in fixing liability; and the court is unable to perceive why one causal element may not be found in the peculiarities, unknown to the sufferer, of his own body. The policy, it must be remembered, too, contained no exception against men with corporal peculiarities, and the crucial question was not changed by Brand's singular configuration; the inquiry still was: What is meant by the word "acci-

dental," and would its definition cover this incident? "If in the act which precedes the injury something unforeseen, unexpected, unusual occurs, which produces the injury, then the injury has resulted through accidental means." The thing that was unexpected and unusual in this instance was the perhaps congenital misplacement of an artery, and this element of the act of sewing up the cut was, within the definition, as truly accidental as would have been the case had the surgeon's needle broken.

Wife Allowed Damages for Husband Infecting Her with Venereal Disease

(Crowell v. Crowell, N. C.)

The Supreme Court of North Carolina recently affirmed in this case a judgment in favor of a wife who asked for actual and punitive damages because, as she alleged in her complaint, her husband contracted a venereal disease and "took advantage of his marital relation with said plaintiff and infected her with said vile and loathsome disease." On the issues submitted, after a demurrer which the defendant filed to the complaint had been overruled, the jury found that he "wrongfully and recklessly infected the plaintiff with a loathsome disease as alleged in the complaint," and assessed the plaintiff's damages at $10,000. The defendant excepted, among other things, to the overruling of his demurrer to the complaint, and to the jury being charged that:

"If you find as facts from the evidence, and by its greater weight, that the defendant knew that he was infected with a foul and loathsome venereal disease; and thereafter, although having such knowledge, he wrongfully had sexual intercourse with the plaintiff, and thereby infected her with said disease, that he did so willfully and recklessly—that is, in reckless and wanton disregard of the plaintiff's rights, being indifferent to her welfare, and not caring whether he infected her or not—then you should answer the first issue, 'yes.' She would be entitled to a just and reasonable compensation for whatever injuries she may have sustained as a necessary and proximate result of the defendant's wrong. She would be entitled to a just and reasonable compensation for any physical or mental suffering which followed as a necessary and proximate result of the defendant's wrong. If you come to the issue of damages, you might, if in your discretion you saw fit, allow the plaintiff punitive damages."

The supreme court finds no error in the rulings of the trial judge. It says that, practically, the only point presented by the appeal was whether or not a cause of action was alleged in the complaint. There can be no question, in this day, that if the defendant had violently assaulted his wife and caused serious bodily injury to her person, and humiliation to her, she could maintain an action for damages against him. Aside from the question of assault, it is a well settled proposition of law that a person is liable if he negligently exposes another to a contagious or infectious disease. *A fortiori*, the defendant would be liable in the present case whether guilty of an assault or not, and independent of the fraud or concealment.

In *Schultz* v. *Christopher*, 65 Wash. 496, and in *Bandfield* v. *Bandfield*, 117 Mich. 80, the courts recognized that the infection of the wife with venereal disease by the husband was a tort, but held that, under their statutes, which differ from those in North Carolina, the wife could not sue her husband for a tort upon her person. But this court must hold that the North Carolina statute of 1913, Ch. 15 and Rev. 408, gave the wife a right to recover damages for injuries to her person, or for other torts sustained by her, against her husband as fully as against any one else. The true ground for the exemption, at common law, of the husband from liability to the wife for his torts, was because by marriage she became his chattel. All the conditions and customs of life have changed. Many laws become obsolete, even when not changed by statute and the constitution, as this has been; and no principle of justice can maintain the proposition in law, or in morals, that a debauchee, as the defendant admitted himself to be, can marry a virtuous girl, and, continuing his round of dissipation, keep up his intercourse with lewd women, contracting, as he admitted, venereal disease, communicate it to his wife, as the jury found, subjecting her to humiliation, and ruining her physically for life, and seeking to run off with all his property, abandoning her to utter indigence; yet be exempted from all liability by the assertion that he and his wife are one, and that he being that one, he owes no duty to her of making reparation to her for the gross wrong that he has done her.

Damages Allowed Physician for Injury to Knee

(Terry Dairy Co. v. Parker (Ark.), 223 S. W. R. 6)

The Supreme Court of Arkansas, in affirming a judgment for $10,000 damages in favor of plaintiff Parker, a physician and surgeon, for injury by an automobile truck that struck him, says that the knee joint was torn apart and twisted as he went down, which resulted in the big muscle's being torn entirely loose from the knee cap. There was an opening left from which the synovial fluid oozed out and ran down his limb. This injury was permanent. He had to use crutches when he moved about in his office. At the time of his injury he was enjoying a practice which netted him from $3,000 to $4,000 a year. Since his injury he had been able to earn only a mere pittance. He had an expectancy of 13 years. The jury were justified under the evidence in returning a verdict in the sum of $10,000. The verdict was not excessive.

Society Proceedings

WESTERN SURGICAL ASSOCIATION

Thirtieth Annual Meeting, held at Los Angeles, Dec. 3-4, 1920

The President, Dr. ARTHUR T. MANN, Minneapolis, in the Chair

Control of Chronic Pain

Dr. FREDERICK G. DYAS, Chicago: Injections of alcohol of varying strength have proved satisfactory in a large number of cases of facial neuralgia, and have produced analgesia for periods of from six to eighteen months. Thus, the efforts to short-circuit the painful area in facial neuralgia constitute the first accurate, scientific and safe method of combating chronic pain. The short-circuiting of the painful area is accomplished by nerve blocking in the form of neurectomy or of intraneural injection. In relatively small, superficial, malignant lesions the same end may be accomplished by the healing of the ulcer by radium. This is especially true of lesions about the orifices of the body. Nerve block relieves the pain during the period of healing. Chronic pain due to some condition other than malignancy is, perhaps, best treated by salt solution, procain, apothesin or quinin and urea, because these produce only temporary loss of pain conduction. In painful states due to malignancy in which loss of motor function is of little moment, alcohol injections of the nerves or neurectomy is indicated. In cases of recurrent mammary carcinoma with great swelling and edema of the upper extremity, permanent block of the brachial plexus is indicated either by alcohol injection or by nerve resection.

DISCUSSION

Dr. JAMES F. PERCY, San Diego, Calif.: The extreme of physical suffering occurs with destruction of the pelvic bones by carcinoma in women. The only help for them is the epidural injection of some local anesthetic, usually procain, into the cauda equina.

Epidermoid Cysts

Dr. H. H. SHERK, Pasadena, Calif.: Epidermoids are evidently of fairly frequent occurrence, but are almost invariably unrecognized. They are almost always mistaken for sebaceous cysts. They may be either traumatic or embryonic in origin. The pearly, horny and laminated contents make their recognition easy.

Harelip and Cleft Palate

Dr. HARRY P. RITCHIE, St. Paul: Harelip and cleft palate are not two separate and distinct entities, but simply a degree of defect in the same embryologic process of fusion. The paramount anatomic situation affecting the surgical repair from all angles is the condition of the alveolar arch. The various defects should be considered in groups. Each individual case should be placed in one of four groups. Plasticity of the bones of the face holds for three months and in some cases longer, and this makes early lip repair imperative. The most reasonable basis of closure is to follow nature's path and form.

DISCUSSION

DR. W. T. COUGHLIN, St. Louis: Far better results are obtained in this work by closing layer by layer, and by approximating the mucous membranes without putting the stitch into the mouth. It is worth while in harelip to look for the muscle ends, as they can be grasped and approximated.

DR. C. D. LOCKWOOD, Pasadena, Calif.: I have followed the simple procedure of taking a pair of compasses and measuring the distance on both sides accurately from the location of the alae nasi to the junction of the skin with the mucous membrane on the lip margin. From this point another measurement is made on the mucous membrane. Exactly the same measurements are made on the two margins of the harelip, whether it be single or double. The edges are freshened, and the points marked by the compass are connected; if these are approximated accurately, perfect union will take place.

Empyema

DR. ARVINE E. MOZINGO, Indianapolis: It is not definitely known who first treated empyema through a tube held airtight in the chest wall with a view of maintaining negative pressure and preventing collapse of the lung. I was able to follow up 80 per cent. of 138 cases treated by the method I have previously described (THE JOURNAL, Dec. 21, 1918, p. 2062) and found no recurrence. The question is often asked, Is the drainage free in the closed method? It is not free, for it is under absolute control. Nor is the drainage continuous, but intermittent, and the cavity under constant negative pressure. The secretion can be removed at will, and is usually removed from one to three times daily, at intervals of from two to twenty-four hours, according to the case. I have never seen an empyema case so serious that operation by the closed method could not be performed. In half of my series of forty-five consecutive cases, the operation was performed in the presence of an active pneumonia or some other serious complication.

Surgery of Mediastinum

DR. ARNOLD SCHWYZER, St. Paul: Purulent infections of the anterior mediastinum apart from direct trauma are mostly due to a breaking down of lymph glands or to the advance of an abscess which started in the neighborhood. I saw one case of abscess along the pericardium on the right side. It originated from a tuberculous chondritis of the fourth, fifth and sixth ribs. It had apparently started on the under surface. The abscess formed a narrow cavity of about 4 or 5 cm. depth along the pericardium. The whole of the affected cartilages was thoroughly excised. Iodoform was rubbed into the wound; the wound was closed up to a fine silkworm drain, and healing occurred promptly. Another case was one of lymph node abscess, taking its origin from what seemed to be one of the right pretracheobronchial glands. The abscess was located behind the second and third cartilages on the right side. At the depth of the abscess a somewhat melanotic but principally chalicotic necrosed lymph gland the size of a pealed almond was found. The patient was a stonemason, which explained the chalicosis. Healing took place after a few weeks. The patient returned about three years later with a similar condition on the other side. This time the abscess pointed in the sternal notch near the head of the left clavicle; and after incision we could enter an abscess cavity downward and inward behind the manubrium sterni, again about 5 cm. in depth. Again a necrotic mass came out. It was a necrotic lymph node of the anterior mediastinum, belonging to the group which lie in the angle of division of the superior vena cava into the two innominate veins, and which Bartels describes as lymphoglandulae anguli anonymi.

Movable Bodies in Knee Joint

DR. O. F. LAMSON, Seattle: Among the movable bodies to be considered are: osteocartilaginous loose bodies; dislocated semilunar cartilage; degenerated fat pads, due to chronic disease, such as tuberculosis and syphilis; sesamoid bone in the internal head of the gastrocnemius; a loose body, and joint lipomas. With manipulation, forced flexion and sudden extension, the offending loose body may usually be dislodged. Only surgery will give lasting relief. During operation the joint should be subjected to as little trauma and injury as possible, and more than the ordinary care should be taken to guard against infection. If the complete exposure of the joint is required, the longitudinal division of the patella may be imperative. But this procedure naturally entails more injury to the joint than the safer longitudinal incision of the external surface of the joint. The diagonal incision following the internal line of the joint is preferable for the removal of the internal semilunar cartilage and other free bodies within the joint.

DISCUSSION

DR. M. S. HENDERSON, Rochester, Minn.: The loose bodies in the case cited seem to have their origin, not from the internal condyle of the femur, but from the tibia. This is very unusual, and the only instance that I know of such an origin of the body being demonstrable.

DR. E. M. SALA, Rock Island, Ill.: I reported a case several years ago in which five loose bodies in the knee joint were removed by open operation, and the knee put at rest for six weeks with perfect restoration of the joint.

DR. JOHN P. LORD, Omaha: In a case I saw some years ago, I made a free transverse section, including the patella, clipping off some of these bodies which were attached anteriorly. The free access afforded by the ample exposure permitted the removal of the bodies in the condylar pouches. The largest of these bodies was 1¾ inches in diameter, and was doubtless formed by a section of the joint becoming detached.

Recurrent or Habitual Dislocation of Shoulder

DR. M. S. HENDERSON, Rochester, Minn.: Of my twenty-three patients, the average age was 28 years. There were twenty males and three females. They were equally divided as to sides. Trauma was mentioned as the initial cause in every case but one. There were but two epileptics; nineteen patients were operated on, and three of these are so recent that they cannot be classified as to results. The type of operation used was capsulorrhaphy. Seven patients were cured; four patients were decidedly improved; that is, they have had very few dislocations since and are satisfied with the operation; one patient was improved; three operations were failures, and one patient was not traced.

Removal of Ventral Tumors of Sacrum by Posterior Route

DR. HERMAN E. PEARSE, Kansas City, Mo.: The patient is placed on his face with the pelvis well raised and thighs flexed. An incision is made from just posterior to the anus upward in the middle line and carried above the coccyx; then, curving to the left, it follows the left edge of the sacrum. It is carried down to the bone and dissected outward right and left, exposing the edges of the sacrum and the sacrosciatic ligament, and carrying the edges of the gluteal muscle. The third sacral nerves must be identified and the sacrum divided below them. They should, if possible, remain intact. The central canal of the sacrum should not be opened. The attachment of the sacrosciatic ligament to the coccyx should then be severed; also the lower sacrum should be freed with a blunt dissector from all connections. The amputation is best performed with a wire saw. The use of chisel and mallet here causes shock. All bleeding is arrested and the growth attacked according to its location, attachment and adhesions. From this point the operation may be of any severity; usually it will be exceedingly simple.

Technic and After-Treatment in Operations on Prostate

DR. ARTHUR E. BENJAMIN, Minneapolis: The functional results following certain types of operations on the prostate are poor, or there may be a stricture or a fistula. The mortality rate is relatively high for the suprapubic operation, but the functional result and comfort of the patient have influenced most surgeons to adopt this method of operating. The function of the kidneys and the condition of the general health of the patient, as well as the local infection, should be treated before and subsequent to the operation. Vaccine treatment sometimes assists in overcoming infection.

DISCUSSION

DR. N. J. MACLEAN, Winnipeg, Canada: I had two patients who had stone formation in the bladder following prostatectomy. One patient was passing small stones continuously, and the other patient, three years after the operation, had the bladder filled with large stones, as large as small hen's eggs. The after-treatment is important. I put in a large tube, and after twenty-four hours aspirate the urine that is in the bladder and put in argyrol solution. This is left in the bladder, and treatment is repeated once a day until the wound is closed. Since I have adopted this procedure I have not had postoperative stone formation.

Are We Getting Satisfactory Results in Stomach Surgery?

DR. B. B. DAVIS, Omaha: From 15 to 40 per cent. of the operations performed for gastric ulcers are failures. At least, they do not restore the patient to sound health. The poor results following gastro-enterostomies have too often been set down as due to faulty technic, absence of organic lesions justifying the operation, incorrect diagnosis, etc. It is my opinion that active ulcers are better dealt with by excision or, better still, by cauterization. It is also important, when operating on ulcers, to find and remove the focus of infection from which the ulcers had their origin. The gallbladder and the appendix are always under suspicion, and no operation is complete until these organs have been inspected carefully and removed unless normal.

DISCUSSION

DR. E. M. SALA, Rock Island, Ill.: If the anastomosis is made as near to the pylorus as possible, its contents will have to go up hill, to to speak, and thus be a more natural process.

DR. EDWARD C. MOORE, Los Angeles: If we were all satisfied with gastro-enterostomy, there would not be so many operations to correct this difficulty. I hesitate very much to perform a gastro-enterostomy in duodenal ulcer in which there is no obstruction.

DR. ARNOLD SCHWYZER, St. Paul: Gastro-enterostomy and the Finney method have advantages; but to decide which is preferable, one has to consider his own experience. In the last fifteen years I have performed about 140 stomach operations. There were many gastro-enterostomies, and about ten pyloroplasties. The results after pyloroplasty were not quite as good as the results of gastro-enterostomy.

DR. HERMAN E. PEARSE, Kansas City, Mo.: Gastro-enterostomy is not a drainage operation. The operation is most successful that places the stoma at the point of greatest acidity where alkaline bile can relieve the acidity, whether it be near the pylorus or fundus.

Laminectomy for Meningitis

DR. ROLAND HILL, St. Louis: In cases of meningitis due to streptococcus or staphylococcus, operation should be performed. Whether or not it will be found advisable to operate in those cases of meningitis following influenza seems an open question. I have known of a few of these cases in which operation was performed, but have never known of one patient operated on early nor have I known a recovery to follow laminectomy. Recovery has followed repeated spinal puncture, and it does seem only rational that laminectomy should yield infinitely better results than spinal puncture if operation is performed before the cerebrospinal channels are blocked by inflammatory products or adhesions.

Section of Anterolateral Tract of the Cord for Relief of Intractable Pain Due to Spinal Cord Lesions

DR. W. E. LEIGHTON, St. Louis: The cord is exposed in the region of the fourth, fifth or sixth thoracic segments by the usual laminectomy; removal of two laminae are, as a rule, sufficient for proper exposure of the cord. The dura having been opened, the dentate ligament is identified, grasped with a mosquito forceps and severed from the dura. Traction on this ligament will rotate the cord so that the anterolateral tract may readily be exposed. A small cataract knife with its back toward the dentate ligament is inserted just in front of the ligament and passed to a depth of 2.5 mm. and brought out behind the origin of the anterior roots, making an incision approximately 2.5 mm. deep by 3 mm. wide. The section may be unilateral or bilateral, depending on the nature of the lesion. Following the section, the dura is closed and the laminectomy wound sutured in layers. Following the operation, careful nursing must be carried out as the patient has lost both pain and temperature sense if the operation has been performed correctly and the patient must also be warned of this. My experience in four cases has shown that the operation will give permanent relief in any lesion below the lower thoracic level. In cases of gastric crisis I believe the section will have to be made much higher than the sixth thoracic segment, and I see no reason why it should not be made as high as the second or third thoracic. I would also suggest to add section of all posterior nerve roots which are present in the field, as this would destroy sensory impulses which reach to a higher level and which are not touched in the section of the anterolateral columns, the site of section including only pain impulses which have crossed to the spinothalmic tract below this level.

Fifth Root Resection Under Local Anesthesia

DR. WILLIAM T. COUGHLIN, St. Louis: The patient is operated on while sitting in a dental chair. A linear incision, from 3½ to 4 inches long, extends upward and backward from the zygoma a little more than the breadth of a thumb in front of the tragus. No transverse cut is made. The skin and underlying tissues along this line are infiltrated layer by layer. A similar infiltration is made along two lines parallel to this and from about three-fourths to 1 inch from its beginning at the zygoma and ascending 1½ inches. The anesthesia used is 0.5 per cent. procain with epinephrin, 6 drops per ounce. The aponeurotic layer is incised along the upper margin of the zygoma from the incision each way for a distance of from three-fourths to 1 inch; the fibers of the temporal muscle are split as done by Abbe, and good retraction is made. The periosteum is scraped away from the surface of the squama and wing of the pterygoid. An opening is made low down with a burr, as in Doyen's method, and enlarged to about the size of half a dollar. The dura is slowly separated from the bone by Tiffany's method. The middle meningeal is always tied before being cut. It is necessary to inject procain around the region of the vessel before tying the artery. It is necessary to inject procain into the third division before commencing to clean it; also to inject into the ganglion before opening its sheath. When the root is reached there is an escape of cerebrospinal fluid. The inner aspect of the dura at its opening around the root is very sensitive. Here a pledget of cotton soaked in from 2 to 4 per cent. cocain solution is laid for a minute or until one can proceed without causing pain. A hook is passed around the root without making any attempt to separate the sensory from the motor root, and the operator may cut or avulse as best suits his fancy, since both seem to give equally as good results.

True Functions of a Tuberculosis Dispensary.—The original idea in the mind of the distinguished founder of the dispensary system for dealing with tuberculosis was that it should act primarily as a "clearing-house" for the different types of the disease. Within its walls the cases were to be sorted, classified and placed on the various roads that lead to recovery from, or amelioration of, the disease as it affects the patient or the community. So far as it does not fulfil this particular function, this indispensable unit in the fight against tuberculosis is not being used in the right manner. The gospel of prevention, too, is here preached by tuberculosis officer and nurse alike. In certain cases treatment is dispensed, and it is just at this point that a considerable amount of latitude has crept in. It is a mistake to allow the dispensary to assume the functions of a hospital outpatient department. Certain specialized forms of treatment, such as injections of various kinds, may legitimately be given, and no one will seriously contend that this practice should be abolished. In the interests of the public at large it is necessary that more attention should be bestowed on the dispensary as a preventive unit.—*Med. Officer* **24**:213, 1920.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

November, 1920, **120**, No. 5

*Some Newer Concepts in Digitalis Therapy. C. Eggleston, New York, —p. 626.

*Roentgenologic Aspects of Lower Right Quadrant Lesions. F. H. Baetjer and J. Friedenwald, Baltimore.—p. 639.

Errors in Diagnosis and Treatment of Duodenal Ulcer. J. D. Dunham, Columbus, Ohio.—p. 647.

*Corrections Versus Compensation of Physical Defects. R. I. Lee and L. T. Brown, Cambridge, Mass.—p. 651.

*Clinical Study of Wassermann-Fast Syphilis, with Special Reference to Prognosis and Treatment. J. H. Stokes and G. J. Busman, Rochester, Minn.—p. 658.

Influenzal Pneumonia: Certain Radiologic Features of Disease in Epidemic of 1920. J. A. Honeij and C. R. Scott, New Haven, Conn. —p. 669.

*Latest (1920) Recrudescence of Influenza. M. E. Alexander and E. L. MacDonald, Waterbury, Conn.—p. 674.

Case of Extradural and Subdural Abscess Following Suppurating Frontal Sinusitis and Osteomyelitis of Frontal Bone. J. H. Bryan, Washington, D. C.—p. 687.

Benign Decidual Tumors of Uterus. J. B. Nichols, Washington, D. C. —p. 697.

*Human Prehallux. J. J. Monahan, Chicago.—p. 708.

Gravity Resisting Ability of Circulation; Its Measurement and Significance (Blood Ptosis). C. W. Crampton, Battle Creek, Mich.—p. 721.

*Pernicious Anemia. J. G. Carr, Chicago.—p. 737.

Digitalis Therapy.—The proper administration of digitalis, Eggleston says, demands the ability to judge the degree of digitalization which is being produced because all of the digitalis bodies can cause serious poisoning and because the nature of heart failure is such that incomplete recovery or death may result from inadequate treatment. The more important criteria by which the degree of digitalization can be judged are discussed. Of the many proprietary preparations and specialties which are offered with high claims for oral administration none is superior to the powdered leaf or tincture of high grade, and most are decidedly inferior. All are quite costly and the price of some is exorbitant. If one feels impelled to employ one of these, Eggleston says that digipuratum or digipoten will be found to be the best, but these are merely carefully assayed, purified preparations from good digitalis leaves.

Roentgen-Ray Diagnosis of Abdominal Lesions.—As with other lesions, Baetjer and Friedenwald say, the lower right quadrant disturbances should be studied in conjunction with the clinical signs. If the roentgen-ray interpretation is diametrically opposed to all the clinical findings, and the two methods cannot be harmonized, it is probably wise to adhere to the clinical interpretation. In other words, no one method of diagnosis must be looked on as absolute.

Physical Defects and Disease.—Lee and Brown are not prepared to support the theory that many ailments of the nervous system or of the gastro-intestinal system are related to bad mechanical use of the body. However, they state that there is a frequent association of such symptoms with the mechanical use of the body. Their investigations have shown that albuminuria of young men which is not a true nephritis is associated almost exclusively with very bad mechanical use of the body. They believe that a sufficient case can be made out of correction as against compensation on the basis of actual ailments of the back and feet, generally conceded to be due to faulty use of the body even without the addition of possible symptoms connected with other organs. Physical training can only accomplish what it is expected to accomplish when it is based on satisfactory fundamental principles and when bodily mechanics is regarded in a similar fashion as are the disturbances of any other system of the body.

Wassermann-Fast Syphilis.—Of 458 syphilitic patients who had received from twelve to twenty-nine arsphenamin injections, combined with mercurial inunctions, the average being fourteen injections and ninety inunctions in eleven months, 6.6 per cent. of primary and secondary cases and 101, 22 per cent., of latent, late and hereditary cases (average duration thirteen years remained persistently Wassermann positive. Sixty-five per cent. of the patients with cardiovascular syphilis had aortitis, and 60 per cent. had myocardial changes. Of the neurosyphilitics, 40 per cent. had paresis and 50 per cent. had clinical tabes dorsalis. Fifty per cent. of patients with neurosyphilis had cardiovascular syphilis also. Gastric and hepatic syphilis were recognized in 52 and 47 per cent., respectively, of the visceral cases as against only 14 per cent. presenting recognizable splenic involvement. Patients with cutaneous syphilis showed the familiar immunity from neurosyphilis and the reverse. While pyogenic foci were present in 74 per cent. of the patients with resistant Wassermann reactions, no frank etiologic connection was apparent. The same was true of alcohol, which was used by only 12 per cent. of these patients. There was no evidence that Wassermann fastness is the result of infection with any special strain of organism. A persistently positive serum Wassermann reaction seems to be an accompaniment of grave rather than of trivial syphilis. Wassermann-fast patients should not be discharged from periodic careful reexamination, with special reference to the cardiovascular and nervous systems throughout life. The frequency of such examinations should be dictated by the gravity and extent of the original process and the degree of apparent resistance to treatment.

Recrudescence of Influenza.—Laboratory and clinical studies of 100 consecutive cases treated were made by Alexander and MacDonald. The rapid mode of spread and the numerous instances in which several members in the same household were simultaneously affected, they believe justify the opinion that the infection was epidemic in character. The prostration, headache pain in the back, the epistaxis, the normal leukocytosis, seem to point clinically that the infections were cases of influenza or la grippe. The finding of the bacillus of Pfeiffer in the throat smears of 57 per cent. of persons examined and in the sputum of 62 per cent. and in the blood culture from one case add a great deal of weight to this conclusion. The study of the sputum and the blood cultures in the pneumonia cases, as also the clinical development and prognosis, lead the authors to the conclusion that in the majority of instances the bacillus of Pfeiffer was to a greater or lesser extent responsible for the pneumonic consolidation either by occurring in combination with the pneumococcus and allied organisms, or else by leaving a locus minoris resistentiate in the lungs for the invasion of the pneumococcus and streptococcus.

Human Prehallux.—From its position, its time of development and its association with disease, Monahan looks on the human prehallux as an evidence of foot degeneration, a reversion to a lower form of foot structure brought about by the devoluting influences of the constitutional diseases with which it is associated.

Pernicious Anemia.—Carr presents the results of his analysis of 148 cases discharged from the Cook County Hospital under the diagnosis of pernicious anemia.

American Journal of Physiology, Baltimore

Dec. 1, 1920, **54**, No. 2

*Distribution and Quantitative Action of Vagi as Determined by Electrical Changes Arising in Heart on Vagus Stimulation. E. W. H. Cruickshank, St. Louis.—p. 217.

*Influence of Glands with Internal Secretions on Respiratory Exchange. D. Marine and C. H. Lenhart, Cleveland.—p. 248.

Studies on Visceral Sensory Nervous System. III. Lung Automatism and Lung Reflexes in Reptilia (Turtles: Chrysemys Elegans and Malacoclemmys Lesueurii. Snake: Eutenia Elegans). A. J. Carlson and A. B. Luckhardt, Chicago.—p. 261.

*Studies of Respiratory Mechanism in Cardiac Dyspnea. J. P. Peters, Jr., and D. P. Barr, New York.
I. Low Alveolar Carbon Dioxid of Cardiac Dyspnea.—p. 307.
II. Effective Lung Volume in Cardiac Dyspnea.—p. 335.
III. Effective Ventilation in Cardiac Dyspnea.—p. 345.

*Studies on Brain Stem. IV. Relation of Cerebral Hemispheres and Thalamus to Arterial Blood Pressure. F. T. Rogers, Chicago.—p. 355.

*Experimental Studies in Diabetes. Internal Pancreatic Function in Relation to Body Mass and Metabolism. 5. Influence of Fever and Intoxication. F. M. Allen, New York.—p. 375.

*Id. 6. Gas Bacillus Infectious in Diabetic Dogs. M. B. Wishart and I. W. Pritchett, New York.—p. 382.

*Studies in Experimental Traumatic Shock. I. Basal Metabolism. J. C. Aub, Boston.—p. 388.

*Id. II. Oxygen Content of Blood. J. C. Aub and T. D. Cunningham, Boston.—p. 408.

*Id. III. Chemical Changes in Blood. J. C. Aub and Hsien Wu, Boston.—p. 416.

Distribution and Quantitative Action of Vagi.—It is concluded by Cruickshank that the positive variation of the demarcation current that develops during vagus stimulation is a phenomenon, not due to, although usually associated, with stoppage of the heart. The greater tendency, noted in the literature, of stimulation of the left vagus to produce block is not necessarily due to a selective action of this nerve upon the conducting system; the result can be explained quite as well through the relatively slight action of the left nerve on the pace-maker, which is located on the right side of the heart, while the reactivity of the remainder of the heart is reduced.

Influence of Endocrines on Respiratory Exchange.—The effect of subcutaneous injection of epinephrin on normal and thyroidectomized rabbits was studied by Marine and Lenhart. Their results on rabbits confirm those of Sandiford on man. Epinephrin causes a rise in the oxygen consumption both in normal and thyroidectomized rabbits. The absolute rise may be greater in normals but the percentile rise may not be altered. Evidence is given that, in general, the onset of the rise in oxygen consumption following epinephrin is delayed in thyroidectomized animals and also that it does not last so long.

Respiratory Mechanism in Cardiac Dyspnea.—Peters and Barr state that the patient with cardiac decompensation maintains his alveolar carbon dioxid at a lower level than does the normal person, and the level to which he will permit it to rise under the influence of rebreathing is proportionately reduced. In cardiac patients with dyspnea no evidence of an increased residual air was obtained by the Lundsgaard method.

Relation of Brain Stem to Arterial Blood Pressure.—The experiments reported on by Rogers suggest that the cerebral hemispheres and thalamus exert a continuous tonic stimulating action on the subcortical blood pressure regulating mechanism. This action is not one of localized cerebral centers but varies according to the amount of brain substance destroyed, rather than the particular area destroyed.

Experimental Studies in Diabetes.—The observations concerning infectious fever reported on here by Allen with the previous ones concerning the pyrexia of exercise in dogs, prove that no specific aggravation of diabetes or lowering of tolerance results from the metabolic alteration attentant on elevation of body temperature in experimental animals.

Gas Bacillus Infection in Diabetic Dogs.—Intramuscular injections of pure cultures of *B. aerogenes* capsulatus produced local necrosis and gas formation in partially depancreatized diabetic dogs. Systemic or peritoneal infection was not obtained. The observations made by Wishart and Pritchett failed to indicate any lowering of resistance in these animals due either to the diabetes itself or to the excess of sugar in the body fluids. The latter point is further emphasized by the fact that the reactions were essentially similar in the first dog with mild glycosuria, in the second dog with heavy glycosuria, and in the third dog free from glycosuria. These results agree with the general experience that such animals ordinarily bear operations well and their wounds heal normally. A lowering of tolerance by infection was demonstrable both by feeding and by intravenous glucose tests. Though this influence is less in animals than in human patients, the difference seems to be one of degree rather than of kind.

Basal Metabolism in Experimental Traumatic Shock.—Experimental traumatic shock, Aub found, causes a marked fall in the rate of basal metabolism to 70 per cent. of the original level. The degree of fall is dependent on the severity of the shock produced. A similar fall of the metabolic rate may be accomplished rapidly by interfering with the circulation by increased pericardial pressure. The effect of hemorrhage is not constant. It may temporarily lower, or have no immediate effect on the metabolic rate. Recovery from shock after blood transfusion is usually associated with a prompt return of the metabolic rate to a normal level.

Oxygen Content of Blood in Experimental Traumatic Shock.—Aub and Cunningham state that there is a markedly diminished oxygen content of the venous blood in experimental traumatic shock. This change occurs before the blood pressure falls to a shock level, and is still present after apparent recovery from shock. The blood flow is also greatly decreased in the development of, during and after decreased metabolism. The sequence of these events in traumatic shock is discussed.

Chemical Changes in Blood in Experimental Traumatic Shock.—Animals with marked muscle trauma but without true shock showed only slight changes in total nonprotein nitrogen, urea, creatin and sugar in the blood. These constituents, especially the creatin and the sugar, rose markedly as shock developed. In control animals the determined constituents showed no appreciable change. The marked rise in creatin is direct evidence of the presence in the blood of products of muscle necrosis, and is, therefore, suggestive evidence for the theory of the chemical cause of traumatic shock. The cause of the rise in blood sugar is discussed briefly.

Boston Medical and Surgical Journal

Dec. 30, 1920, **183**, No. 27

*Preventive Medicine in Its Relation to Schools. F. S. Churchill, Milton.—p. 747.
*Preventive Medicine and Hygiene in Relation to Colleges. R. I. Lee, Cambridge.—p. 750.
General Management of Health in Industry. W. I. Clark, Jr., Worcester.—p. 755.
Control of Venereal Diseases. G. G. Smith, Boston.—p. 756.
Mental Hygiene. W. E. Fernald, Waverley.—p. 759.
Case of Multiple Sclerosis. F. L. Meredith, New York.—p. 761.
Diagnosis and Treatment of Neurosyphilis. H. C. Solomon, Boston.—p. 768.
*Treatment of Fracture of Neck of Femur. R. Whitman, New York.—p. 773.
Spina Bifida: Operability and Time for Surgical Intervention. T. W. Harmer, Boston.—p. 775.

Jan. 6, 1921, **184**, No. 1

New England Surgical Society. H. Gage, Worcester.—p. 1.
Sliding Hernia. E. H. Risley, Waterville, Me.—p. 6.
Torsion of Fallopian Tube. S. S. Dearborn, Nashua, N. H.—p. 12.

Medical School Inspection.—Medical inspection of schools, conceived of as a measure of preventive medicine, is discussed by Churchill, and he gives a brief summary as to the nutritional condition of 1,552 pupils studied.

Preventive Medicine, Hygiene and Health Habits.—Lee believes that while our standard methods of preventive medicine with which we are all familiar can be perfected considerably, nevertheless, not much more is to be expected of them. Already, in consequence of competent medical advice, there is only an occasional inevitable death from such conditions as appendicitis, mastoid, etc. At the present time local sanitary inspection and public health measures largely guarantee the purity of water and milk and tend to eliminate typhoid fever. It is for these reasons that Lee suggest strongly that more emphasis should be laid on instruction in hygiene and the systematic endeavor to attempt to establish in the population of all communities adequate health habits.

Canadian Journal of Mental Hygiene, Toronto

October, 1920, **2**, No. 3

Care of Mentally Defective. C. E. Doherty.—p. 207.
*Occupational Therapy in a Mental Hospital. F. E. Devlin.—p. 219.
*Juvenile Delinquency and Mental Defect. C. K. Clarke.—p. 228.
*Parole of Insane. O. Noel.—p. 233.
*Rôle of Psychiatric Clinic in Community. G. S. Mundie.—p. 237.

Occupational Therapy in Mental Hospital.—Devlin is of the opinion that the time has arrived when we should endeavor to seek out the good effects of occupational therapy and apply them not alone in demented cases, but as far as possible to all stages of mental diseases. Its results may prove of incalculable benefit to patients and of joy to their families. To the state the great saving in the cost of their maintenance, in preventing or uprooting habit disorganization, in the creation of much by their labor, that is also useful to themselves, in the enormously increased number of cases fit for parole even for considerable periods of time; and last, but not least, the greater probability of the restoration to health, mental and physical, of many of these persons who will thus be enabled to lead lives of usefulness to themselves and to society. Devlin advocates the training of a certain number of nurses, religious or lay, in each hospital for the

insane to be known as nursing therapists, under the direction of one of their number to be known as chief therapist; also the creation of an index card system of occupational therapy for every patient which will note the effects and progress, or otherwise, in each individual case. Patients should be trained in groups of twenty, to which each patient will be assigned as soon as any special treatment he may require is finished.

Mental Defect and Juvenile Delinquency.—Clarke presents the results of an analysis of 4,310 cases of different mental types which passed through the Toronto General Hospital psychiatric clinic.

Prevention of Insanity.—The two principal factors which contribute to the crowding of hospitals for the insane, Noel says, are heredity and congenital conditions; that the way to combat them is to prevent consanguineous marriages, especially between families with doubtful heredity, and that children should be begotten according to principles of sound hygiene. This is the surest way of decreasing the number of the insane in the generations to come.

Mental Deficiency and Disease.—Mundie claims that the community, until recently, had laid too much stress on the physical side disease. More attention should be paid to the mental side of people. In this regard the work of the psychiatric clinic is valuable. Its purpose is to prevent and preserve the mental health of persons, to diagnose and estimate the number of feebleminded and mentally abnormal persons in the community, and, lastly, to try and solve the problem of those persons who physically well, are not feebleminded or insane, but are misfits in the community.

Colorado Medicine, Denver

December, 1920, **17**, No. 12

*Lethargic Encephalitis. G. E. Neuhaus, Denver.—p. 317.

Lethargic Encephalitis.—An analysis of fifteen cases is made by Neuhaus. Nine gave a positive history of having had influenza less than six months previously. The onset was gradual in twelve cases, sudden in three. In five cases, quite severe pain in some part of the body, either the shoulder or the arms and forearms, less frequently in the lower extremities, was a feature. A rise in temperature was observed in eight cases. In the lethargic cases it ran a fairly even course from 100.2 to about 102 F., at times showing marked exacerbation. Catalepsy was present in four patients. Mental symptoms were present in four patients at some time during their illness, but were a marked feature in only two cases. One patient who died within twenty-four hours had acute maniacal excitement. The Babinski reflex was observed in two cases, and in two others the Oppenheim and Gordon were noted without the Babinski. A poorly developed Kernig sign and some rigidity of the neck were present in about half the cases observed. Complications on the part of other organs were not observed. The laboratory findings were for the most part negative. The mortality in the series was 30 per cent. The treatment consisted mainly in careful nursing. Lumbar puncture and spinal drainage seemed distinctly beneficial in some cases.

Endocrinology, Los Angeles

October-December, 1920, **4**, No. 4

*Experimental Researches on Pituitary Body. J. Camus and G. Roussy, Paris.—p. 507.
Relation of Thyroid and of Suprarenals to Electric Conductivity of Other Tissues. G. W. Crile, Cleveland.—p. 523.
Secondary Sexual Characteristics and Endocrinology. A. Pezard, Paris.—p. 527.
*Origin and Evolution of Interstitial Cells and of Ovary and Significance of Different Internal Secretions of Ovary. I. Ochoterena and E. Ramirez, Mexico.—p. 541.
*Internal Secretion of Testis. A. C. Massaglia, Chicago.—p. 547.
*Effects of Roentgen-Ray Treatment of Hypophysis in Bronchial Asthma. M. Ascoli and A. Fagiuoli, Catania, Italy.—p. 567.
Fatal Case of Cardiac Dilatation with Associated Gastropathy and Endocrinopathy. C. M. Nice, Birmingham.—p. 574.
*Influence of Thyroids on Functions of Suprarenals. P. T. Herring, St. Andrews, Scotland.—p. 577.

Experimental Researches on Pituitary.—Diabetes insipidus, glycosuria and those dystrophies considered as hypophysial in origin are discussed by Camus and Roussy and experimental work is summarized. Different interventions practiced on the pituitary—partial removal of one or both lobes or total removal—failed to modify in appreciable fashion either the tolerance to carbohydrates or the appearance of alimentary glycosuria. The injection of concentrated extracts of the posterior lobe, the anterior lobe or of the whole hypophysis, did not sensibly modify—in the animals operated on—the limit of tolerance to carbohydrates.

Internal Secretions of Ovary.—Of the two endocrine functions of the ovary, Ochoterena and Ramirez state the corpus luteum mediates that having to do with the formation of decidual cells and the modification of the uterine mucosa which favor nidification of the ovum. If fecundation occurs the structure is transformed to the corpus luteum of pregnancy and alters the nature of its secretion. It assumes relations with the mammary glands and other endocrine organs. The secretion of the corpus luteum being antagonistic to that of the interstitial ovarian cells, when the corpus luteum retrogresses or is experimentally suppressed, the action of the interstitial secretion is manifested. This secretion is the determining factor of menstruation; during the menstrual period the corpus luteum is either nonexistent or in a regressive phase, while the interstitial cells manifest with maximum intensity the secretory phenomena. The ovarian congestion which coexists with menstruation favors the maturation of the graaffian follicle. This ruptures and gives rise to a new corpus luteum which in turn depresses the interstitial secretion, causes the discontinuance of menstruation and thus again initiates the cycle previously described.

Internal Secretion of Testis.—The experimental work reported on by Massaglia is interpreted by him as showing that the testis has an internal secretion, which gives to the male the masculine sexual characters and sexual instinct and keeps the function of the hypophysis normal. His researches indicate that the Leydig's cells have the endocrine function. This conception is supported by the following facts: (1) The Leydig's cells have the characters of secretory cells in that they elaborate fatty granules and mitochondria. (2) The animal remains normal even when we have marked atrophy of the seminal epithelium. (3) It is only when the atrophic testis is removed with the Leydig's cells then in good condition, that changes are noted after castration. (4) No facts exist which speak for the conception that the spermatogenetic cells exercise the endocrine function: they complete a cytologic cycle to become spermatozoa, which have merely the biologic function of reproductive cells. The new information on the internal secretion of the testis that shows the effects of its abolition indicates that there exists through the internal testicular secretion a functional correlation between the testis and hypophysis cerebri. It lends support to the view that the pituitary body has the function of ruling the skeletal growth, and perhaps throws some light on the obscure etiology of gigantism and acromegaly. In the acromegalic there is found marked hypertrophy of the hypophysis with eosinophilia of its cells and deficient development of sexual organs. But in the acromegalic the more important fact is that it is a lesion (hypertrophy, adenoma) of the pituitary body, whereas in the castrated it is the loss of the internal secretion of the testis, which secondarily produces hypertrophy of the hypophysis.

Roentgen-Ray Treatment of Asthma.—Stimulating endocrine radiotherapy was used by Ascoli and Fagiuoli in a case of bronchial asthma, and case of scleroderma, angioneurotic edema and eunuchoidism.

Influence of Thyroid Function on Suprarenals.—There is much evidence, though not unanimous, Herring says, that hyperthyroidism increases the size and weight of the suprarenals. There is some evidence that hyperthyroidism does in the healthy animal increase the epinephrin load of the chromaphil tissues. A specific action of thyroid in stimulating the secretion of epinephrin and in sensitizing the structures amenable to its action, though not improbable is not satisfactorily proved. Hypothyroidism is shown to have no effect on the epinephrin load of the suprarenals.

Journal of Laboratory and Clinical Medicine, St. Louis

December, 1920, **6**, No. 3

*Practical Applications and Uses of Schick Test. A. Zingher, New York.—p. 117.
*Motility of Antrum and Relation of Rhythmic Activity of Pylorie

Sphincter to that of Antrum. H. Wheelon and J. E. Thomas, St. Louis.—p. 124.
*Quantitative Nature of Complement Fixation. J. J. Seelman, Milwaukee.—p. 144.
Complement vs. Amboceptor Titrations in Wassermann Test. R. L. Kahn, Lansing, Mich.—p. 153.
Composite Reagent for Determination of Sodium Chlorid in Urine. H. V. Atkinson, Chicago.—p. 160.
Utilization of Ciliary Ganglion for Class Work in Physiology and Pharmacology of Eye. H. McGuigan, Chicago.—p. 161.

Shick Test.—Zingher suggests that active immunization with toxin-antitoxin of all young children from 6 months to 2 years of age is essential in bringing up a diphtheria-immune population. He urges that Schick test and control test be applied to all children over 2 years of age, and all those giving a positive reaction should be actively immunized with toxin-antitoxin. Diphtheria outbreaks can be controlled in homes, institutions, and schools by promptly applying the Schick test and by giving prophylactic injections of antitoxin to the susceptible individuals.

Motility of Antrum.—Direct, graphic and radiographic observations made by Wheelon and Thomas show that the antrum and pyloric sphincters are rhythmical in action, that is, contractions and relaxations follow each other in a regular sequence. These rhythmical actions or cycles occur at the rate of from 3 to 5 per minute, and are maintained for hours. Rhythmical motility is best obtained when the stomach contains food, however, typical results may be obtained from the stomach recently emptied. The phases of activity in the sphincter are such as to supplement those of the antrum, hence, the motility of these two parts may be considered as constituting a cycle of the pars pylorica. The authors' results along with those of Cole and Luckhardt, Phillips and Carlson, demonstrate that the activities of the pyloric sphincter, at least in great part, are dependent on the activities of the antrum during digestive processes is propagated into the sphincter, thereby causing it to contract at a time of relaxation of the antrum, and to relax because of the arrival of a wave of relaxation over the antrum. Such conditions indirectly lead to the conclusion that acid if it acts to regulate the "pylorus" must also act in a similar way upon the antrum and stomach as a whole, for, as shown above, motility of the antrum determines motility of the sphincter.

Wassermann Test.—The classical Wassermann test, when properly performed by a skilled technician, Seelman claims, tends to err altogether on the negative side. Partial reactions are always specific. The aim should be to make the standard test more delicate than the present classical test, without sacrificing its specificity, so that a larger number of definitely positive reactions may be obtained in cases of syphilis in which the blood contains only small amounts of fixing substances. It is suggested that this be accomplished by testing all serums with the classical method modified to remove its major sources of error, and a raw serum test modified to remove the usual sources of error inherent in present raw serum methods. A scheme of interpretation of partial reactions and their clinical application is given. This gives these reactions a more definite clinical value than they now have.

Journal of Parasitology, Urbana, Ill.

December, 1920, **7**, No. 2

*Etiology of Tsutsugamushi Disease. N. Hayashi.—p. 53.
Egg Laying Habits of Californian Anophelines. W. B. Herms and S. B. Freeborn, Berkeley, Calif.—p. 69.
Migratory Course of Trichosomoides Crassicauda (Bellingham) in Body of Final Host. S. Yokogawa.—p. 80.
Nosema Apis Zander. R. Kudo, Urbana.—p. 85.
Acanthocephala Parasitic in Dog. H. J. Van Cleave, Urbana.—p. 91.

Etiology of Tsutsugamushi Disease. — Minute bodies, described as "rod," "spheroid" and "ring-shaped," have been found in the lymphocytes of lymph nodes and in mononuclear endothelial phagocytes of the spleen and lymph nodes, and in the region of the bite in patients suffering from tsutsugamushi disease. They also occur free in the blood plasma, and in severe cases in the red cells. The disease has been transmitted experimentally to monkeys, guinea-pigs, rabbits and calves. Bodies similar in appearance and distribution to those found in human cases, have been demonstrated in experimentally infected animals. These bodies, on account of the difficulty of differentiating their cytoplasmic and chromatic elements, resemble bacteria, but no evidence of their bacterial nature has been obtained from cultural or animal experiments. Cultural experiments have proved wholly negative. Biologically, this protozoon is to be considered as a new species, resembling but showing differences from *Bartonella bacilliformis* and *Theileria parva*. The parasite to which it appears most closely allied is *Theileria parva*. The organism found in tsutsugamushi diseases Tayashi has designated tentatively as *Theileria tsutsugamuchi*, spec. nov.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

November, 1920, **16**, No. 4

*Action of Epinephrin on Heart. III. Modification of Action of Epinephrin by Chloroform. W. J. R. Heinekamp, Chicago.—p. 247.
Toxicity and Skin Irritant Effect of Certain Derivatives of Dichloroethyl Sulfid. E. K. Marshall, Jr., and J. W. Williams, St. Louis.—p. 259.
*Studies of Chronic Intoxications on Albino Rats. I. Organization of Investigations. T. Sollmann, O. H. Schettler and N. C. Wetzel, Cleveland.—p. 273.
Id. II. Alcohols (Ethyl, Methyl and "Wood") and Acetone. T. Sollmann, Cleveland.—p. 291.
Effect of Carminative Volatile Oils on Muscular Movements of Intestine. O. H. Plant, Philadelphia.—p. 311.

Chloroform Modifies Action of Epinephrin on Heart.—Chloroform is toxic for heart muscle, producing or tending to produce weakening of the organ. Because of the action of chloroform on the heart. Heinekamp states that epinephrin is contraindicated wherever chloroform is employed and chloroform wherever epinephrin is used.

Effect of Alcohol on Growth.—The investigation made by Sollmann emphasizes that the dangers of chronic alcoholism are much greater with methyl than with ethyl alcohol. It proves that the "impurities" of wood alcohol play only a minor part in chronic intoxication ,the methyl alcohol itself being the dominant toxic agent.

Nebraska State Medical Journal, Norfolk

December, 1920, **5**, No. 12

*Postoperative Gastric and Intestinal Hemorrhage. J. E. Summers, Omaha.—p. 341.
Modern Smallpox. F. A. Wells, Axtell.—p. 346.
Therapy of Corneal Ulcers. D. D. Sanderson, Lincoln.—p. 349.
Lethargic Encephalitis. F. X. Rudloff, Battle Creek, Mich.—p. 351.
*Treatment of Trichomonas Intestinalis with Methylene Blue. M. Block, Omaha.—p. 354.
Sporotrichosis; Report of Case. M. G. Wohl, Omaha.—p. 355.
Local Anesthesia in Treatment of Rectal and Anal Diseases. L. E. Moon, Omaha.—p. 357.

Control of Postoperative Hemorrhage.—It is urged by Summers that assistants and nurses should exercise more care and gentleness in the preoperative preparation of the patient. His position on the table; control while going under the anesthetic and while being prepared for the operation, should be such as to prevent injury to or undue pressure on any part of the body. This same rule should apply during the operative procedure and after until consciousness has been fully restored. The operating surgeon should make his incisions so as to, as far as possible, avoid injury to the blood vessels overlying the parts the subject of surgical inquiry or procedure. Incisions should be made sufficiently free so that the parts to be exposed and manipulated may be handled with the greatest gentleness. Violent retraction of incisions is always to be condemned. Asepsis should be absolute.

Methylene Blue in Trichomonas Infestation.—Methylene blue was used by Block in his case freely by month and as a rectal irrigation. His patient was given 9 grains by mouth daily, in divided doses of 3 grams each, also 10 grains to the quart of hot water as a rectal irrigation morning and evening. He was put on a liquid diet and instructed to remain quietly in bed. This was kept up over a period of five days when he complained of severe burning on urination and the preparation was withdrawn for a period of three days. A stool examination was made at this time, but no flagellate forms were found. The methylene blue was repeated over a period of five days and by this time the diarrhea entirely subsided, the stools took on a formed appearance, the distressed feeling disappeared, and the patient gained in weight.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

November, 1920, **25**, No. 6

History of Electrotherapy. H. A. Colwell.—p. 169.
Radiography of Gallbladder. N. Macleod.—p. 181.

British Journal of Experimental Pathology, London

December, 1920, **1**, No. 6

*Etiology of Epidemic Influenza: Experiments in Search of Filter Passing Virus. H. B. Maitland, M. L. Cowan and H. K. Detweiler. —p. 263.
*Effect of Surgical Anesthesia on Reaction of Blood. J. B. Collip.—p. 282.
Influence of Reaction of Medium and of Presence of Buffer Salts on Metabolism of Bacteria. C. G. L. Wolf.—p. 288.
Glycogenic Infiltration of Liver of Laboratory Rabbits. H. M. Turnbull.—p. 310.

Etiology of Influenza.—Seventeen cases of influenza were studied by Maitland and his associates and by inoculating animals, principally guinea-pigs, with filtrates of material from these patients they have observed the same typical lesions. By reinoculating one guinea-pig from another they found the lesions repeated through seven reinoculations. Heating the inoculant to 56 C. for one hour did not diminish the animal lesions, nor did incubation with convalescent plasma. The authors were not able to obtain cultures of a filterable organism, although the attempt to do so was not exhaustive. They did find, however, that the typical lesions appeared in guinea-pigs after inoculation with sterile cultures of widely different types and ages. Further, this "typical" lung change was found in guinea-pigs from stock and breeding-pens that had never been inoculated, and also in animals that came from a breeding-farm and another laboratory. The same percentage of animal lesions occurred after inoculation with material from healthy controls as with influenzal material.

Effect of Anesthesia on Blood Reaction.—The rate of elimination of water, acid, and basic phosphates and ammonia by the kidney in periods before, during and after anesthesia has been determined by Collip in a number of cases. The acidity of the urine, as estimated by this method, is not materially altered during surgical anesthesia. A decrease in the C_H of the blood during surgical anesthesia is not indicated. The acidity of the urine may be decreased during anesthesia by the induction of hyperpnea. It is suggested that during surgical anesthesia two processes, which are mutually antagonistic, are active, one the "acidotic process" of Haggard and Henderson due directly to disturbance in metabolism as a result of anesthesia, the other the overventilation process. Whether the C_H of the blood falls, rises or remains unchanged during surgical anesthesia would therefore depend upon the relative intensities of these two processes.

British Medical Journal, London

Dec. 18, 1920, **2**, No. 3129

*Autohemagglutination. C. J. Bond.—p. 925.
Midwifery Practice. W. J. Young.—p. 927.
*Rickets in Outpatient Department. H. M. M. Mackay.—p. 929.
*Value of Extensive Inoculation of Community During Epidemic of Typhoid. A. Romanes and G. G. Johnstone.—p. 932.
Immediate Surgical Complications of Dysentery. B. Hughes and H. S. Banks.—p. 934.
Placenta Ablata Treated by Pituitary Extract with Obstetric Anesthesia. J. L. Smith.—p. 936.
Surgical Emphysema After a Blow on Neck. J. W. Heekes.—p. 936.
Pleural Reflex. W. F. Castle.—p. 936.

Autohemagglutination.—The phenomena of hemagglutination, Bond says, have been shown to possess a physiologic as well as a biologic significance. All red blood corpuscles are capable of forming hemagglutinogen under certain conditions. Agglutinogen, like agglutinin, exists in the nonspecific form, agglutinogen A, and in a graded series of specific forms, agglutinogen B, C, D, etc. The specific and the nonspecific agglutinogens (like the corresponding agglutinins) although allied, are not identical in composition or character. Agglutinogen has so far only been found in combination with or attached to the surface or stroma of the red cells. It apparently does not exist in the serum in the free or uncombined state. The specific and nonspecific agglutinins, on the other hand, are present in the serum in the free state, and both kinds are removed by filtering the serum through a porcelain filter.

Rickets.—MacKay's observations are in accordance with the fairly general belief that rickets is a dietetic disease and commonly develops in children receiving insufficient fat and too much carbohydrate in the food, and that it shows itself most commonly among those who have been bottle fed. The cases observed gave no indication that fat in the form of cod liver oil, butter, or cottonseed oil exerts any specific curative influence on the disease in doses of 2 drams daily. On the other hand, there was a marked improvement in a group of eighteen cases treated with larger doses of cod liver oil, together with advice as to diet, but it is certain that this improvement was in part due to the season of the year.

Value of Typhoid Inoculation.—The opinion is put forward by Romanes and Johnstone that an extensive inoculation during an epidemic of typhoid fever is beneficial, probably to the individual in particular and almost certainly so to the community as a whole.

Indian Journal of Medicine, Calcutta

October, 1920, **1**, No. 3

Transposition of Viscera: Three Cases. V. G. Nadgir.—p. 131.
Scopolamin Morphin Narcosis in Labor. J. M. Das.—p. 136.
Treatment of Cerebrospinal Meningitis by Spinal Irrigation with Electrargol. U. N. Brahmachari.—p. 147.
Two Cases of B. Coli Infection with Inflammation of Bile Passages. J. N. Maitra.—p. 150.
Treatment of Syphilis by Intravenous Injection of Concentrated Solution of Novarsenobillon. R. B. W. V. Kane.—p. 153.
Kala-Azar. S. Kundu.—p. 155.
Use of Prophylactic Vaccines in Influenza. P. Ganguly.—p. 162.
Case of Cholecystitis Complicating Influenza. N. Banerjee.—p. 166.
*Case of Cerebral Hemorrhage with Respiration Failure Six Hours Before Death. N. S. Nathan.—p. 168.
*Case of Syphilitic Pyrexia. B. Das.—p. 169.
Ocular Manifestations of Influenza. J. Maitra.—p. 171.

Cerebral Hemorrhage with Failing Respiration.—Nathan's patient was kept alive by means of artificial respiration. Whenever the artificial breathing was stopped, there were no respiratory movements. All the time the patient continued to have a good pulse.

Syphilitic Pyrexia.—The temperature of Das' patient was 101 F. in the morning and 103 F. in the afternoon for two months. After three days of treatment with iodids and mercury it fell to normal and remained normal.

Japan Medical World, Tokyo

Nov. 27, 1920, **10**, No. 48

Regulation of Musculus Cululiaris by Nerves. S. Nishi.—p. 1035.
In What Cases of Irreducible Hernia is Taxis Applicable? S. Yokoi. —p. 1035.
Color Blindness in School Children. T. Takeuchi.—p. 1036.

Dec. 4, 1920, **10**, No. 49

Ophthalmic Symptoms of Lethargic Encephalitis. C. Koguchi.—p. 1059.
Disinfection of House and Elimination of Fly in Cholera. H. Toyoda. —p. 1059.
Human and Animal Anthrax. Sakurada.—p. 1060.

Journal of Tropical Medicine and Hygiene, London

Dec. 1, 1920, **23**, No. 23

*Treatment of Nodular Leprosy by Intravenous Injections of Chaulmoogra Oil. P. Harper.—p. 285.
Preventive Use of Quinin. H. Scidelin.—p. 285.

Iodin, Ether and Chaulmoogra Oil in Leprosy.—A mixture consisting of iodin, 1 grain; ether, 500 minims, and chaulmoogra oil, 500 minims, is used by Harper. For the first two or three days only 10 minims of the mixture is injected. Thereafter 20 minims are given. Good results are reported from the use of this mixture.

Lancet, London

Dec. 11, 1920, **2**, No. 24

Neurologic Aspects of Ophthalmic Cases. J. Taylor.—p. 1181.
Man versus Microbe. W. J. Collins.—p. 1183.
*Cancer of Colon: Causation and Treatment. W. T. Lane.—p. 1184.
*Clinical Aspects of Enteric Group Infection. J. R. Harper.—p. 1190.

*Gastric Analysis in Acne Rosacea. J. A. Ryle and H. W. Barber.—p. 1195.
Achylia Gastrica. T. I. Bennett.—p. 1196.
*Loss of Speech Following Anesthesia. A. B. Clark.—p. 1198.

Cancer of Colon.—Lane emphasizes that the treatment of cancer of the colon must differ with the locality and extent of the growth, the condition of the intestines at the time of the operation (especially as regards accumulated contents), the vitality of the individual, the invasion of adjacent viscera or the abdominal wall, the presence of secondary growths, the degree of intra-abdominal tension, the age and sex of the patients, the amount of fat present in the tissues, and the circumstances in which the operation is performed. A careful study of the causation and the mechanics of stasis on which cancer depends would indicate clearly that the ideal operation for cancer of the large bowel is colectomy, providing that a sufficient length of pelvic colon can be secured into which the end of the ileum can be inserted directly, and that other conditions are favorable to its performance.

Enteric Group Infection.—Harper maintains that an accurate diagnosis of enteric group infection can only follow as the result of the intimate working of the clinician and the bacteriologist. In probably 70 per cent. of cases the clinician experienced in this group infection will be able to diagnose it as such, but it is impossible for him to decide from the clinical picture which member of the group is the causal organism. A positive diagnosis can only be made by the isolation of the specific organism, or by the fact that the patient has acquired an immunity to one of the organisms.

Gastric Analysis in Acne Rosacea.—A number of cases of acne rosacea were examined by Ryle and Barber with a view to determining, if possible, the actual pathogenesis of the condition and the most satisfactory method of treatment. The connection between this disease and dyspepsia is generally recognized, and it is usually supposed that overindulgence in alcohol, tea, or coffee produces its effect by setting up a chronic gastritis. Twelve cases of acne rosacea were investigated by the fractional method of gastric analysis. In five there was complete achlorhydria throughout the period of the meal. In two cases there was an extreme degree of hypochlorhydria. Of the remaining five cases, one showed no secretion of free hydrochloric until after one hour, and two showed a temporary high peak in the curve of acidity, with an abrupt fall to the base line. Other features revealed by the test were a tendency to rapid emptying, such as obtains in other cases of so-called achylia gastrica, and a highly mucoid resting secretion, frequently of the viscid consistency of raw eggwhite. The increased liability to acne rosacea during menstrual period and pregnancy is of interest, in view of the fact that achylia is also reputed to be more common at these times. The administration of dilute hydrochloric acid, 30 minims and upward, well diluted, after meals or during meals, has yielded very satisfactory results.

Loss of Speech Following Anesthesia.—In the case cited by Clark gas and ether were given, followed by chloroform and C. E. mixture, the quantities used being 2 ounces of ether and 3 ounces each of chloroform and C. E. mixture. The patient took the anesthetic well, and never appeared to be very deeply under or abnormal in any way. The same evening, after recovery from the anesthetic, he could not answer any questions or speak a single word. The following day he could utter a few words, but showed marked incoordination of speech and was unable to write sense, though apparently knowing quite well what he wished to write. There was no personal or family history bearing on the case. His speech was still rather slow and deliberate, fifty days after operation.

National Medical Journal of China, Shanghai

September, 1920, **6**, No. 3

Prevalence of Syphilis in Peking. E. T. H. Tsen.—p. 159.
Complement Fixation Test for Syphilis. E. T. H. Tsen.—p. 167.
Native Ophthalmic Practice in China. H. T. Pi.—p. 188.
Extrem in Which Profession of Scientific Medicine is Held in China. P. C. Kiang.—p. 196.
Chinese Hermaphrodite and Dicephalous Monster. C. S. Lin.—p. 208.

South African Medical Record, Cape Town

Nov. 27, 1920, **18**, No. 22

Influence of Great War on Modern Surgery. C. F. M. Saint.—p. 431.

Annales de Médecine, Paris

September, 1920, **8**, No. 3

*The Cholesterin Cycle. A. Chauffard, G. Laroche and A. Grigaut.—p. 149.
Bacillus Faecalis Alcaligenes as Responsible for Certain Mild Typhoidal and Other Conditions. A. Rochaix and A. Blanchard.—p. 173.
*Subacute Hypertrophy of the Tonsils. G. Portmann.—p. 185.
*Bacteriology of Whooping Cough. E. Libert.—p. 218.

The Cholesterin Cycle in the Organism.—Chauffard, Laroche and Grigaut report further research which has confirmed their previous assertion that the suprarenals are the source of origin of cholesterin. In four fetuses the suprarenals contained from 2.60 to 8.16 per thousand cholesterin, and in five newly born infants, from 14.05 to 36.10 per thousand, while the livers in the two groups contained only from 2.42 to 2.67, and the kidneys only from 2.14 to 2.90. There is no doubt, they add, that the suprarenals control the cholesterin content of the blood. In chemical tests of the suprarenals from sixty-eight cadavers, the range of the cholesterin content was from 1.18 to 82.8 gm. per thousand. Physiology shows that the suprarenals function most actively when the organism has most need of lipoids, as in pregnancy. Their charts show that the bile contains most cholesterin in the pregnant, next in pneumonia, tuberculous meningitis, chronic nephritis and diabetes, all above the normal standard (1.50), the range being from 1.95 to 7.50. But the liver eliminates and transforms far more cholesterin than is contained in the bile. Possibly it may be eliminated in the form of cholalic acid. The cholesterin becomes oxidized more completely in the liver than in the other tissues, passing beyond the oxycholesterins which represent less perfectly oxidized cholesterin. They recall that we have no means of influencing the cholesterin cycle. To date we know of no way to modify the functioning of the suprarenals. We can change the food, but this is not very effectual. We can act on the liver, however, and the research of Rouzaud and of Cabanis at Vichy has demonstrated that after a course of the waters there, hypercholesterinemia subsides to the normal cholesterin content. This fact they regard as throwing light on both pathologic and normal physiology. This seems to be the only way to date in which we can regulate the cholesterin content of the blood. The cholesterin content of blood from the placenta and from the umbilical vein and artery proves that the fetus retains most of the cholesterin derived from the mother. This is the reverse of what occurs with urea; blood coming from the fetus is richer in urea than blood passing from the mother to the fetus.

Subacute Hypertrophy of the Tonsils.—Portmann devotes thirty-four pages and five illustrations to the study of the acute, subacute and chronic forms of hypertrophy of the tonsils. The subacute hypertrophy seems to be the reaction of the tonsils to any endogenous or exogenous infection when there is a tendency to the lymphatic or lymphatic-thymic state.

Bacteriology of Whooping Cough.—Libert cites authorities who have confirmed the causal rôle of the Bordet-Gengou bacillus in the etiology of pertussis and have reproduced whooping cough with it in dogs and rabbits. We now have only to await confirmation of the success obtained by some clinicians with an antipertussis serum or vaccine.

Archives Médicales Belges, Liége

August, 1920, **73**, No. 8

*Lessons from the War in Military Hygiene. Maistriau.—p. 643.
Chronic Urethritis and Prostatitis from Colon Bacillus Infection. C. E. Verdier (U. S. A.)—p. 656.
*Traumatic Aneurysms. R. Lenger, M. Stassen and J. Voncken.—p. 660.

Some of the Lessons from the War in Regard to Army Hygiene.—Maistriau remarks that some of the lessons learned from the war have the authority of a huge, carefully conducted laboratory experiment, and that we must not fail to profit by them while the remembrance of them is still perfect.

Traumatic Aneurysms.—The history of the various measures that have been applied in treatment of traumatic aneurysms is reviewed. The practical conclusion of the discussion and the statistics is that ligation and resection of the aneurysm are the safest and best means for treatment in the

majority of cases. Only with exceptionally favorable conditions should end-to-end suture be considered, but this is sometimes the only means to save the limb.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 12, 1920, **44**, No. 34

Typhoid Septicemia with Intermittent Fever. H. Bourges.—p. 1330.
*Acute Purulent Pleurisy. M. Renaud.—p. 1334. Conc'n.
Apyretic Spirochetal Jaundice. M. Herscher and J. Roberti.—p. 1343.
*Radioscopy of Aneurysm of Abdominal Aorta. Ribadeau-Dumas and Mallet.—p. 1348.
*Syndrome of the Cavernous Sinus. Foix.—p. 1355.
*Sclerosis in Patches. G. Guillain, P. Jacquet and Lechelle.—p. 1362.
*Sodium Carbonate Treatment of Varices. Sicard and Paraf.—p. 1369.
*Abnormal Spinal Fluid in Hysteria. A. Rouquier.—p. 1375.
*Varicose Phlebitis and Embolism. J. Amaudrut.—p. 1380.
*Epidemic Encephalitis. R. Cruchet.—p. 1382.
*Pneumothorax with Pulmonary Tuberculosis. L. Bernard and Salomon.—p. 1387.

Treatment of Acute Purulent Pleurisy.—Renaud here reiterates that he has noted in his more than a thousand cases of acute pleuropulmonary disease in the last two years that the lung process is the main element in the disease and its evolution determines the prognosis. When suppuration occurs, this is a manifestation of the victory of the organism over the infection. The general symptoms subside as the purulent process becomes installed. In the primary phase, the infectious disease with localization in the lung and pleura calls for treatment of the lung and heart. The pleural complication is negligible in comparison. Treatment with repose, strict hygiene and dieting, digitalis and cold baths, with possibly venesection during the first phase, keeping the patient in bed until complete resolution of the pulmonary process—this may require three weeks at least with pneumonia—and neglecting the pleura, should be the rule. When there is no longer fear of collapse on the part of the heart, he gives an antiserum by the vein with epinephrin. Not until after the patient has been tided along to the second phase does he consider the pleura with puncture and lavage and possibly injection of an antiserum. There is no hurry; expectant treatment for days or weeks may lead to a vomica. If not, he introduces a rubber drain not over 9, 8 or 10 mm. in diameter with siphon drainage. This small drain is like a continuous puncture; it allows irrigation with an antiseptic, and extensive operative procedures are unnecessary. He has thus cured completely twelve patients with associated acute pulmonary and pleural processes without sequelae. Four recovered with a spontaneous vomica; five after puncture repeated from two to ten times, and three after puncture at first and then the narrow tube drainage. He reiterates that there is no need for the extensive intervention which others have been advocating recently for acute purulent pleurisy.

Radioscopy of Aneurysm of Abdominal Aorta.—In three of the four cases described the abdomen was inflated to promote radioscopy by the pneumoperitoneum; carbon dioxid had been injected or a mixture of this with oxygen, and the characteristic roentgen-ray findings are reproduced. Only one of the four patients had presented the classic attacks of pain, and in this case the sac-like aneurysm was back of the stomach and had probably irritated the solar plexus. In three of the cases there was aortic valvular disease and in two an aneurysm elsewhere. All were syphilitic, while the fourth patient was tuberculous with gout and lead poisoning. In Halle's case a murmur from the abdominal aorta was propagated along the spine to nearly the top of the head, but was most pronounced in the sacrum region; it could be heard with the stethoscope along the femurs.

Progressive Unilateral Ophthalmoplegia.—Foix warns that disease in the external wall of the cavernous sinus should always be suggested by rapidly progressive unilateral ophthalmoplegia accompanied with pain in the region of the ophthalmic nerve. The absence of disturbance in the circulation, and negative roentgenoscopy should not exclude this assumption. Necropsy revealed a sarcoma in one of the two cases reported, located in the posterior lobe of the pituitary. The paralysis had begun in both in the sixth pair, and had then involved the third and fourth pairs. In the second case a tumor was removed which had been encroaching on the rear wall of the sphenoidal sinus, and the patient is still being given prophylactic radiotherapy. The above symptoms should suggest the advisability of intervention with access through the nose. This may cure a sphenoidal lesion and mitigate in case of a tumor beyond.

Disseminated Sclerosis.—Among the peculiar features of the case to which attention is called is the inversion of the plantar reflex when the young man is placed face downward. Also that the previously mild pathologic condition became suddenly and permanently much worse after intercurrent diphtheria. Another feature was the aggravation in the symptoms which followed intravenous tentative treatment with neo-arsphenamin. Bacteriologic examination and inoculation of the blood were negative; also the Wassermann test for blood and spinal fluid, but the Emmanuel test in the latter was positive, and the benzoin test partially positive.

Obliteration of Varicose Veins.—Sicard and Paraf have found that injection directly into the vein of 10 c.c. of a 10 per cent. solution of sodium carbonate obliterates the vein without either local or general untoward by-effects. The amount may be injected at different points in the vein to a total of 30 c.c., every day or second day, but a single injection often answers the purpose. The patient sits in a chair on a table or stands for the injection and then reclines for a few minutes, after which he can go about his business. The sodium carbonate is not toxic and there has been no sign of its migration in the more than forty patients thus injected, nor in the hundreds they have injected by the vein with other drugs.

Abnormal Spinal Fluid in Hysteria.—Rouquier found abnormally high albumin and sugar content in the cerebrospinal fluid in fifteen cases of severe intermittent paroxysms of hysteric contracture or convulsions.

Embolism from Varicose Veins.—The interest of Amaudrut's case lies in the development of intestinal and pulmonary embolism from the varices on the legs, with a consecutive abscess in the lung, and its healing under induced pneumothorax.

Epidemic Encephalitis.—Cruchet recalls his publications in April, 1917, after nearly a year's observation of forty cases of an epidemic subacute encephalitis. The disease was reported a month later by Economo of Vienna and baptized lethargic encephalitis. Cruchet here comments on the peculiar gravity of the cases with true myoclonia, and the myorhythmic form, the most common.

Pneumothorax with Bilateral Tuberculosis.—In the case described the proposed artificial pneumothorax was abandoned as both lungs seemed seriously affected. But pneumothorax then occurred spontaneously, and great improvement has followed, to an almost clinical cure, the pneumothorax having been kept up artificially.

Journal de Médecine de Bordeaux

Dec. 10, 1920, **91**, No. 23

*Rehabilitation of the Disabled. J. Gourdon and Dijonneau.—p. 627.
Occlusion of Intestine from Band Developed in Ten Days After Laparotomy. R. Villar.—p. 635.

Rehabilitation of the Disabled.—This profusely illustrated article discusses the work of assembling parts of a machine, *ajustage*, and the question as to which of the war disabled are capable of resuming or learning work of this kind.

Journal de Radiologie et d'Electrologie, Paris

November, 1920, **4**, No. 11

*Radiologic Control of Pseudarthrosis. M. Galop.—p. 481.
Bilateral Köhler's Disease. A. Lomon.—p. 488.
Technic for Radium Treatment of Fibromas. S. Laborde.—p. 489.
*Combined Radiotherapy of Tumors. N. S. Finzi.—p. 491.

Pseudarthrosis of Forearm.—Galop's numerous illustrations demonstrate anew the importance of roentgen-ray examination in the differential diagnosis and for control of the healing of fractures, and especially of pseudarthrosis of the forearm. They show the preferable technic and present unmistakable evidence that well placed metal clips, clamps and wires are tolerated perfectly by the tissues, without any trace of osteitis at the point of contact. The transformation of the bone graft as it blends to form a homogeneous mass with the

stumps can be traced, and likewise the failure to do this when suppuration interferes.

Combined Radiotherapy of Malignant Tumors.—Finzi recapitulates the experiences at St. Bartholomew's Hospital, London, proclaiming in conclusion that "inoperable is no longer synonymous with incurable."

Lyon Médical

Nov. 25, 1920, **129**, No. 22

*Epithelioma in Kidney Pelvis. E. Perrin and G. Aigrot.—p. 929.
*Epidural Injections for Sciatica. H. Feuillade.—p. 933.
Relations Between Physicians of Enemy Countries. M. Durand.—p. 950.

Epithelioma in Kidney Pelvis.—In the case described, painful hematuria was the only symptom from the nonpapillary epithelioma found in the pelvis of the left kidney. Even when the kidney was exposed, the diagnosis was still dubious until after exploratory nephrotomy.

Epidural Injections for Sciatica.—Feuillade states that the pain of sciatic neuralgia almost invariably subsides at once after epidural injection of an anesthetic or of enough physiologic saline solution to arrest the pain by mechanical means. When the pain is without complications and is traceable to exposure to wet and cold, a series of epidural injections generally cures it completely, and may prove successful even in rebellious chronic cases. As this method of treatment is so simple and effectual, he urges its application from the first in cases of sciatic neuralgia, without wasting time on other measures. The patient can recline on the side or kneel, stooping to make the region of the sacrum and coccyx protrude, thus stretching the obturator ligament. The needle is introduced between the tuberosities of the sacrum in the middle of the hiatus between the sacrum and coccyx, perpendicular to the skin, and is pushed through the obturator ligament. When this is pierced, the tip of the needle is turned into the axis of the sacral canal, and the tip is pushed into the spinal canal to a total depth of 3 or 4 cm. The fluid is then slowly injected; it lies between the dura and the periosteum of the spinal canal and spreads along the nerve roots. From 1 to 3 c.c. of a 1 per cent. solution of cocain is an effectual analgesic. For mechanical action he injects from 10 to 20 c.c. of physiologic saline, with or without a little cocain. A little epinephrin is always useful to modify the circulation in the region. When the neuralgia can be traced to one or more of the nerve roots, the analgesic has to be injected into the subarachnoid space, the technic that of lumbar puncture instead of the epidural technic.

Presse Médicale, Paris

Dec. 11, 1921, **28**, No. 91

*The Digestion Hemolysis Test for Insufficiency of the Liver. F. Widal, P. Abrami and N. Iancovesco.—p. 893.
Partial Antigens in Therapeusis. L. Cheinisse.—p. 899.

Digestion Hemolysis as Sign of Insufficiency of the Liver.—Widal, Abrami and Iancovesco describe what they say is an instructive, reliable and very sensitive test of insufficiency of the liver. It requires only counting the leukocytes before and at intervals for an hour after drinking a glass of milk, fasting. With a normal liver, the leukocyte figure remains about the same, but with derangement of liver functioning there is pronounced destruction of leukocytes during the first hour or two of digestion. Their research has demonstrated that some of the proteins in the food which escape complete disintegration, pass through the wall of the intestine, and penetrate into the portal vein. The blood traversing the liver has certain of these incompletely disintegrated proteins held back by the liver. This they call the proteopexic function of the liver. When the liver is incapable of thus retaining these incompletely disintegrated proteins, they pass on into the general circulation, where they exert a destructive action on the blood corpuscles, the digestion hemoclasic crisis as they call it. They found no trace of this digestion hemolysis in the large numbers of healthy persons examined, nor in those with different diseases sparing the liver. But in various forms of liver disease this hemoclasic crisis was pronounced, the leukocytes dropping to one half or one third of the previous figure. Other symptoms may accompany this hemoclasic crisis, but the drop in the leukocytes is enough of a reaction without heeding the change in the blood pressure, etc. This test is so sensitive that it reveals latent insufficiency of the liver, and the return to normal conditions can be traced with it. They found that the liver is always more or less injured by arsphenamin treatment, chloroform, etc., and the insufficiency may persist for two or three weeks after the arsphenamin. In ten diabetics, ingestion of from 2 to 20 gm. of glucose brought on the hemoclasic crisis in nine; the one exception was a case of renal diabetes. The test is positive in some persons with even as little as 15 gm. of milk, but 200 gm. is the usual amount used. Their research suggests further that certain phenomena which have hitherto been ascribed to motor or reflex disturbances in the stomach, are in fact due to this digestion proteopexic insufficiency of the liver. It is most pronounced with toxic, bacterial or circulatory damage of the liver, probably because the action of these factors is diffuse. They explain why this proteopexic insufficiency has nothing to do with alimentary anaphylaxis. The large numbers of hospital patients taking arsphenamin treatment gave them exceptional opportunity for study of the damage of the liver from the arsenicals, and its course under different doses and technics and on repetition of the dose. The proteopexic function of the liver is impaired first and early, and even with very small doses. Jaundice represents the severest form of this insufficiency of the liver for which the arsenicals are responsible. As a rule the hepatism is latent.

Progrès Médical, Paris

Oct. 23, 1920, **35**, No. 43

*Pellagra. L. Bory.—p. 461.
*Chondromas on the Limbs. Delbet.—p. 462.

Pellagra.—Bory agrees with those who think that pellagra develops only on a soil prepared by a one-sided diet, usually exclusively cereal, but that the infection is transmitted probably by some winged insect, presumably a sand-fly. He has recently encountered two cases, one in an Italian soldier in France, coming from a hotbed of pellagra. The other case developed in northern France in a mosquito haunted region but no other instance of the disease has been known there before or since. Bory learned, however, that a body of Italian troops had been camped in the vicinity for several weeks, and he reasons that the insects had become infected from them. The man contracting the disease was probably the only one sufficiently predisposed by his one-sided diet, as he had lived for years exclusively on milk, rice and other cereals on account of chronic digestive disturbance.

Chondroma.—Delbet recalls that malignant tumors are essentially single; multiplicity suggests a benign course. Chondromas develop almost exclusively during the period of growth. The alleged chondromas found in the parotid gland, testicle, tonsil, etc., are not true chondromas, but mixed tumors, embryomas. In a case described there were several chondromas on the man's fingers but the joints were intact; these tumors were translucent to light but not to the roentgen rays. They had softened in the interior, forming a pseudocyst. The chondromas which undergo osteoid transformation are extremely malignant. In the case described, the roentgen rays indicate this osteoid degeneration, and there is a suspiciously enlarged gland in each axilla. Delbet proposes to resect the enlarged gland on the side of the chondroma, basing the decision as to the operation on the chondromas on the microscopic findings in the gland.

Schweizerische medizinische Wochenschrift, Basel

Nov. 25, 1920, **50**, No. 48

*Poisoning with Water-Glass. H. Eichhorst.—p. 1081.
The Stages of Development of Pulmonary Tuberculosis. O. Amrein.—p. 1083.
Nature and Importance of High Frequency Currents. H. Weber.—p. 1086.

Water-Glass Poisoning.—Eichhorst explains that water-glass is being used now in many households for preserving eggs for the winter, and reports the case of a man who drank about 200 c.c. of it by mistake for wine as it was kept in a wine bottle. He vomited part of the fluid, but the lining of

the alimentary canal was evidently irritated, with gray discoloration, burning pains, vomiting, diarrhea, occult bleeding and diffuse and severe abdominal pains. The kidneys also showed irritation, albumin, casts and blood appearing in the urine for a few days, and also sugar and acetone, the blood pressure running up to 152, with lymphocytosis and residual nitrogen of 0.073 per cent. The sugar content of the blood was not high, but the temperature rose for a few days. Treatment consisted of giving scraps of ice, with ice bag to the neck, rinsing out the mouth with an anesthetic, and giving iced milk and mixture of acacia. Eichhorst mentions parenthetically in conclusion that the herb equisetum has been recommended as a diuretic. This herb is very rich in silicic acid, and the hematuria in this water-glass poisoning case suggests caution in the use of equisetum. Lehmann has reported a case of hemoglobinuria developing after drinking a decoction of *Equisetum limosum*.

Annali d'Igiene, Rome

August, 1920, **30**, No. 8

Parasites of Field Mice. A. Splendore.—p. 445. Cont'd.
*Tobacco Smoke as Disinfectant for the Mouth. V. Puntoni.—p. 469.
*Immunity of Rats to Plague. F. Picciniuni.—p. 484.
Etiology of Malignant Tumors. E. M. Perdue (Kansas City).—p. 497. Comment, A. Scala.—p. 502.

September, 1920, **30**, No. 9

The Proteids of the Cholera Vibrio. G. Sanarelli.—p. 521.
Diagnosis of Rabies in Putrefied Brain. V. Puntoni.—p. 538.
Serodiagnosis of Bacillary Dysentery. C. Vallardi.—p. 544.
Parasites in Field Mice and Wild Rats. A. Splendore.—p. 560. Cont'n. Campaign Against Malaria at Fiumicino. B. Grassi and M. Sella. Supplement.

Tobacco Smoke as Disinfectant for the Mouth.—Puntoni used a series of connected flasks to approximate conditions when tobacco smoke is drawn into the mouth, and reports research with this and with other means for determining its bactericidal influence on various bacteria. He found that it has a strong disinfecting action in vitro on certain micro-organisms, such as the meningococcus, cholera vibrio and Pfeiffer bacillus, but the saliva in the mouth and the attraction of the mucosa attenuate the action of the smoke in the mouth. Only with the strongest smoke and the most susceptible micro-organisms (meningococcus and cholera vibrio) was any bactericidal effect apparent in the mouth. Typhoid and other more resistant germs are not affected, and it is absurd, he says, to ascribe any bactericidal action to smoke inhaled into the lower air passages. No difference in the bactericidal action of the smoke could be detected between ordinary and denicotinized cigars. The bactericidal action was only slightly attenuated by passage of the smoke through pressed cotton, although this retained all the nicotine. Several elements of the smoke evidently combine in the disinfecting action.

Plague in Rats at Naples.—Picciniuni is in charge of the bacteriologic laboratory of the port of Naples. In 1914, eighteen rats with plague were found in 2,310 examined; none in 1915 and 1916; two in 1918 out of 1,421 examined, and twenty-five in 1919 but none had been found in 1920 to date of writing. He states that the majority of the rats at the port are immune to plague, and that this is probably the case in all large ports with vessels arriving from plague infested regions. This immunity of the local rats is a potent means of defense against the diffusion of plague in the ports. But the inland rats are not thus protected, and the port rats and inland rats should be kept separate. This has been done at Naples for many years and it is undoubtedly to this that the city of Naples owes its freedom from plague in rats and man.

Pediatria, Naples

Nov. 1, 1920, **28**, No. 21

*Etiology of Epidemic Encephalitis. S. Maggiore and M. Sindoni.—p. 985.
*Congenital Heart Defects and Syphilis. S. de Stefano.—p. 992.
The Thymus in Young Children. H. A. F. Canelli.—p. 1002. Cont'd.

Etiology of Epidemic Encephalitis.—Maggiore and Sindoni have already reported their success in treating epidemic encephalitis with an anti-influenza bacillus vaccine as a form of protein therapy. They have further succeeded in isolating from the blood and spinal fluid of five patients with different types of epidemic encephalitis a gram-negative coccus with which they reproduced the disease in rabbits by intracranial injection of a patient's spinal fluid or intravenous injection of a culture of the coccus. Repeated passages through animals reproduced invariably the same clinical picture and pathologic anatomic findings. These cocci seem to resemble in every respect the germs isolated by Noguchi in epidemic poliomyelitis, the only difference apparently being the greater susceptibility of rabbits and of adults to this encephalitis coccus. The seven various types of epidemic poliomyelitis are found in epidemic encephalitis, and the pathologic anatomy is closely alike, they say, especially the neurophagia and the polyblastic infiltration of the pia. The inference as to the identity of the two diseases is obvious, they conclude.

Congenital Heart Defects.—De Stefano reports that in the last six years at the Children's Clinic at Naples there were twenty-six boys and six girls with congenital cardiopathies. Fully 72 per cent. presented signs of unmistakable inherited syphilis and it was probable in all the others except five.

Policlinico, Rome

Dec. 6, 1920, **27**, No. 49

Diagnosis of Influenzal Pulmonary Abscess. F. Ciecarelli.—p. 1403.
*Abdominal Reflexes with Pneumonia. S. Pastore.—p. 1406.
Simple Ulcer of the Intestine. G. Basile.—p. 1410.
Automatic Vaginal Speculum. U. La-Monica.—p. 1412.
Identification of Instrument After Crime. A. De Dominicis.—p. 1414.

Abdominal Reflexes with Acute Pleural and Pulmonary Disease.—Pastore does not refer to the abdominal symptoms which frequently usher in pneumonia in children but subside as the pneumonia becomes installed. He describes some cases in which the clinical picture seemed to be that of actual appendicitis, and not until the fourth day or later did the pneumonia become apparent, or it was overshadowed to the end. Operations on the appendix showed that it was normal. In one boy of 10 the pain and other symptoms deceptively simulating acute appendicitis developed the third day of a typical left pneumonia and persisted until the eighth day when the crisis of the pneumonia was reached. Then all the symptoms subsided. In these puzzling cases palpation through the rectum is often instructive, or palpation of Douglas' pouch, or pressure on the right kidney region; the latter elicits pain at McBurney's point in case of appendicitis. Another aid in differentiation is the wide difference between the temperature in the axilla and in the rectum with appendicitis. Flushed cheeks point to pneumonia rather than appendicitis. Radioscopy may be instructive. The pneumonia is not always on the side of the symptoms suggesting appendicitis, and actual appendicitis may accompany the pneumonia. Talamon has reported a case of suppurative parotitis, and then appendicitis, accompanying pneumonia. Ferrier found at necropsy, in a right pneumonia case, unsuspected appenditicis and ulcerative endocarditis, with pneumococci in the pus from all. Pastore cites a number of cases of intestinal complications of pneumonia, including dysenteriform enteritis and perforating duodenal ulcer. The lymphatic constitution and the female sex seem to predispose to these appendicitis complications, by way of the sympathetic system. The pneumococcus may attack the appendix first and migrate thence to the lung. "The practitioner must keep his eye on the lung in appendicitis and on the appendix in pneumonia."

Riforma Medica, Naples

Oct. 16, 1920, **36**, No. 42

Present Status of Mammary Tumors. D. Giordano.—p. 949.
*Hemorrhagic Purpura and Tuberculosis. G. Garin.—p. 952.
Filtrable Virus in Lethargic Encephalitis. Durand.—p. 957.
Lethargic Encephalitis Suggesting Influenza. G. Sofrè.—p. 957.
Perforation of Bowel in Typhoid in Children. M. Gioseffi.—p. 959.
Carbohydrates in Diet of Diabetics. A. Ferrannini.—p. 960.
Torticollis. E. Aievoli.—p. 961.

Hemorrhagic Purpura and Tuberculosis.—Garin cites Schupfer's case of chronic hemorrhagic purpura with fifteen attacks in the course of fourteen years, and his twenty-six primary cases to sustain the view that hemorrhagic purpura is not a morbid entity but is merely a manifestation of some other disease. The primary disease is almost inevitably tuberculosis. In a personal case described, everything seemed

to indicate a primary severe hemorrhagic purpura in a young man followed rapidly by acute nephritis which proved fatal in less than a month after the first symptoms of the purpura. Necropsy disclosed miliary tuberculosis, affecting the kidneys predominantly. The purpura, pain in the joints, etc., were merely the expression of toxic action from the tuberculosis.

Rivista Critica de Clinica Medica, Florence

Oct. 25, 1920, **21**, No. 30

Clinical Pictures of Epidemic Encephalitis and Their Interpretation. A. Varisco.—p. 349. Conc'n in No. 32, p. 373.

Nov. 5, 1920, **21**, No. 31

Present Status of Bowen's Precancerous Dermatosis. D'Arbela.—p. 368.

Revista de la Asoc. Méd. Argentina, Buenos Aires

July-September, 1920, **33**, No. 189-191

Gumma Evacuated Through Bronchus. Arrillaga and Elizalde.—p. 335.
Differences Between Tuberculous and Syphilitic Granulation Tissue. P. I. Elizalde.—p. 345.
*Bladder-Kidney Reflex. O. M. Pico.—p. 358.
Sensitiveness to Curare of European and American Frogs. L. Cervera and J. Guglielmetti.—p. 362.
The Natural Antitoxin Content of Normal Horse Serum in Treatment of Diphtheria. R. Kraus and A. Sordelli.—p. 365.
*Case of Recklinghausen's Disease. M. R. Castex and A. Marco del Pont.—p. 369.
*Etiology and Treatment of Diabetes. T. Padilla and E. S. Paz.—p. 383.
*The Stomach-Gallbladder-Duodenum Syndrome. L. Agote.—p. 391.
*Somnolency from Thyroid Insufficiency. C. Bonorino Udaondo.—p. 413.
Case of Lethargic Encephalitis. M. R. Castex and N. Romano.—p. 423.
*Serotherapy of Chancroid. J. Reenstierna.—p. 433.
Paroxysmal Tachycardia; Two Cases. R. A. Bullrich.—p. 440.
Progressive Lipodystrophy. J. P. Garrahan.—p. 447.
*Primary Hypogenitalism; Three Cases. M. R. Castex and C. P. Waldorp.—p. 458.

Bladder-Kidney Reflex.—Pico has been testing on dogs the inhibition of secretion of urine when the bladder is much distended, and concludes that this so-called bladder-kidney reflex is merely a vasomotor reflex such as is liable to be induced by any painful stimulus.

Recklinghausen's Disease.—Castex and del Pont give a colored plate and photomicrograms of an extreme case of subcutaneous tumors of the Recklinghausen type in a man of 48. The tumors show a sarcomatous structure with a tendency to fatty degeneration, but they were small and had never been noticed by the man who had applied for treatment for an acute throat disturbance. He presented numerous manifestations of tertiary syphilis, with hypertrophy of the heart and a gummatous bone process.

Diabetes.—Padilla and Paz report three new cases and the outcome in three cases previously published, in all of which diabetes had developed on a basis of syphilis. The fact that the sugar disappeared completely from the urine under treatment for syphilis in all these six cases confirms, they declare, the syphilitic nature of the diabetes. One man did not complete the course, and the glycosuria returned after primary improvement. Dietetic treatment is wise even in these syphilitic cases of diabetes, to avoid straining the pancreas.

Clinical Picture from Adhesions Between Stomach, Gallbladder and Duodenum.—Agote describes five cases, out of a more extensive experience, in which symptoms suggesting gallstones, gastric ulcer and periduodenitis were blended, without a clear clinical picture of either. In one typical case the man developed duodenal ulcer, cardiospasm and gallstone colic, the blending of the symptoms proving very puzzling, but a triple operation, cholecystectomy, gastro-enterostomy and temporary gastrotomy, restored apparently complete and permanent clinical health. The only way to differentiate this *síndrome gastro-cistico-duodenal*, he says, is to compare feature by feature the symptoms observed with the features of pure, uncomplicated cholelithiasis, and disease in the stomach, duodenum or gallbladder, noting the confusion in the symptoms, their changing about, the waves in their intensity, absence of anorexia, constant sensation of oppression in the gallbladder and epigastric region, the usually normal composition of the gastric juice, the long duration of the disturbances without any complete subsidence, at any time, and the localized reactions in the peritoneum. All these viscera are innervated and irrigated by a common nerve and blood vessel supply.

Thyroid Deficiency and Somnolency.—Bonorino reports two cases of prolonged somnolency in a woman of 29 and man of 33. He accepted it as a manifestation of thyroid insufficiency, corroborated by a few other minor symptoms, and the cure under thyroid treatment confirmed the correctness of this assumption, and the efficacy of thyroid treatment in such cases. His review of the literature shows the frequency of a tendency to sleeplessness with excessive functioning of the thyroid, in contrast to the frequent irresistible and prolonged somnolency with thyroid dysfunction.

Serotherapy of Chancroids.—Reenstierna's experiences in this line were reviewed Nov. 20, 1920, p. 1460, when published elsewhere.

Primary Genital Dystrophy.—Castex and Waldorp describe with nineteen illustrations three cases of primary hypogenitalism in men of 22, 64 and 48, all evidently endocrinopathies from tardy inherited syphilis. Each represents a different type, one a feminine eunuchoid development, another presenting the Rummo and Ferrannini type of genito-dystrophic senilism or geroderma; the third a type of primary tardy hypogenitalism, the previously virile man of 48 acquiring characteristics resembling those of an elderly woman, with indications of pituitary and thyroid malfunction. Under treatment for syphilis, supplemented by organotherapy, testicle, thyroid and pituitary, conditions were materially improved and the aspect and functions of manhood returned to some extent.

Semana Médica, Buenos Aires

Sept. 23, 1920, **27**, No. 39

*Anatomy of Duodenum and Pancreas. A. Aberry Oneto.—p. 395.
*Chemotherapy of Syphilis. C. Pillado Matheu.—p. 415.
Dystocia from Agglutination of the Cervix. T. A. Chamorro.—p. 422.
*Crossed Hemiplegia from Brain Tumor. J. M. Obarrio.—p. 423.

Anatomy of the Duodenum and Pancreas.—This is the long and profusely illustrated thesis presented in competition for the chair of descriptive anatomy, based on original research and the findings compared with textbooks and atlases.

Chemotherapy of Syphilis.—Pillado Matheu argues that the drugs used in treatment of syphilis are not specific but act by stimulating oxidations, and that the amin elements are the important ones, the arsenic being merely a catalyzer.

Crossed Hemiplegia from Tumor in the Pons.—The symptoms in the boy of 5 are compared with those on record in cases of crossed hemiplegia, and the diagnosis is made, by exclusion, of a glioma in the pons.

Oct. 14, 1920, **27**, No. 42

Extraperitoneal Cesarean Section. A. R. Enriquez and T. A. Chamorro.—p. 503.
Electronegative Peroxids in Treatment of Tuberculosis. F. Landolph.—p. 506.
*Digestive Anti-Anaphylaxis. A. Zubizarreta.—p. 513.
*Operative Pneumothorax. R. Finochietto.—p. 517.
Hemihypertrophy. J. P. Garrahan.—p. 519.
Large Doses of Sodium Cacodylate and Arrenal by the Vein. A. Bergman.—p. 521.

Cure of Digestive Anaphylaxis.—Zubizarreta recalls Arraga's experience with the severe disturbances sometimes encountered when infants fed on cow's milk were vaccinated. The vaccine is cow's lymph, and when it gets into the circulation through the scarification it may act as a parenteral protein to bring on an attack of anaphylaxis from the imperfectly digested cow's milk already in the system. He recalls further the fact that the protein bringing on the attack does not have to be injected parenterally for this to occur. He has had guinea-pigs develop attacks of anaphylaxis after they had been fed large amounts of rabbit's serum and then, a week or so later, had been fed more of the same serum. It acted like a parenteral injection to bring on the attack. This is what he calls digestive anaphylaxis. "If for any reason the special substance involved does not become animalized or homologized, further ingestion of more of the same substance brings on the attack of anaphylaxis." The homologizing, as he calls it, seems to be done in the upper digestive tract. After injection through a laparotomy of egg albumin into the stomach of a rabbit, borne without harm, a subsequent intravenous injection of the same is also borne without harm. But if the egg albumin is injected lower down in the digestive

tract, in the large intestine, the animal dies or the possibly fatal attack of digestive anaphylaxis follows.

To differentiate digestive anaphylaxis in a patient, he injects 2 c.c. of the patient's serum into the peritoneum of a guinea-pig, and twenty-four hours later he injects a dilute solution of egg yolk into a vein of the same animal. If the guinea-pig shows signs of anaphylactic shock, the diagnosis of digestive anaphylaxis for eggs is certain. A skin test is also instructive; for this he applies with a spatula to a scarified region a small amount of the food substance suspected. If insoluble, it is pulverized, the powder scattered on the scarified surface and moistened with a few drops of physiologic saline. With a positive reaction, an urticaria-like wheal forms, about 0.5 cm. in diameter, which gradually subsides. These two tests are applied regularly in his service, and have thrown light on a number of puzzling cases. He has found that certain children are unable to eat fresh eggs while they can take eggs with impunity when they have been kept for a time; it is hard to convince families that the disturbances presented by their children can be warded off by buying the eggs from the grocery instead of serving eggs from their own poultry yard. Another practical point learned from his experience is the benefit from extract of stomach and upper intestine tissues, rich in the ferments of digestion and homologization, reemplacing or stimulating the missing ferments in the patients. In the case of one girl of 10, intense anaphylaxis was induced whenever she ate meat. Fever, vomiting, diarrhea, great prostration, shifting edema, and intense general pruritus followed every attempt to eat beef. As a measure for anti-anaphylaxis he ordered the child to take 0.5 gm. peptone an hour before the meat meal. She could then eat beef with some degree of comfort, the anaphylactic symptoms afterward being less severe, but still regularly appearing. He then changed to Liebig's beef extract, ordering 1 c.c. in hot water an hour before the meal. The result, he says, was actually brilliant. During the following six months she was able to eat beef at will, once or twice a day, and has never shown the slightest symptoms of the old intolerance. Since then the anti-anaphylaxis measure has been abandoned, and the child seems quite normal in every respect. This case teaches that beef meat is liable to induce anaphylaxis; the child never showed any intolerance for milk.

Operative Pneumothorax.—Finochietto advises a preliminary artificial pneumothorax before an operation for a hydatid cyst in the lung. It aids in the differential diagnosis, and prepares the pleura and the lung for the operation. After the operation, it aids in checking the flow of blood and in preventing the filling up of the cavity. In 90 per cent. of all such cases the hydatid cyst has already induced perforation of one or more of the adjacent bronchial twigs. He recalls Posadas' pioneer work in this line in 1898, his partial and temporary thoracoplastic operation exposing the field, and his method of harpooning with a large Hagedorn needle allowing a very slow and gradual formation of the pneumothorax through the needle holes, the harpoon holding up the lung as the pleura is amply opened. The principles he thus applied received little heed for twenty years, but the present day simple surgery of the lung is based on the identical principles which he advocated for treatment of deep and nonadherent hydatid cysts in the lungs twenty-two years ago.

Deutsche medizinische Wochenschrift, Berlin

Oct. 1, 1920, **46**, No. 40

Therapeutic Inoculation with Recurrent Fever in General Paresis. F. Plaut and G. Steiner.—p. 1101.
Trials with Tuberculins of Different Sorts. Schuster.—p. 1102.
Birth and Infant Death Rate Since the War. A. Schlossmann.—p. 1104.
Clinical Examination of the Circulation in Comparison with the Results with the von Basch Models. W. Arnoldi.—p. 1106.
Effect of Iontophoresis in Eye Affections. G. Erlanger.—p. 1107.
Coxa Vara. M. Zondek.—p. 1109.
*Latent Syphilis of the Throat. Gerber.—p. 1110.
Roentgen Findings of the Diaphragm. J. Ziegler.—p. 1112.
Humagsolan in Alopecia Areata. Prior.—p. 1114.
Present Clinical Status of Cardiovascular Syphilis. Rosin.—p. 1114.
Otologic Hints for the General Practitioner. G. Brühl.—p. 1117.

Latent Syphilis of the Throat.—Gerber regrets to note that one of the mistakes made during the present campaign of enlightenment in regard to syphilis is that the disease is still represented almost exclusively as an external disease—as a disease of the genital organs. It is the same mistake that is made when lupus is represented solely as a skin disease, which prevents the early recognition of the affection. That syphilis may appear first in the throat and only in the throat seems to be lost sight of by many physicians. Some do not seem to be able to get away from the idea that the primary effect in syphilis is always a hard nodule, whereas it may be a soft chancre, a pimple, a vesicle or a mere sore. Such symptoms may mean everything and they may mean nothing. As for the roseola, that may consist of only a slight mottling of the skin requiring a skilled eye for its recognition. The opalescent patches are often found only in some out-of-the-way place. Quite often there is a fibrinous coating presenting the appearance of angina simplex, lacunaris, necrotica; diphtheria, Plaut-Vincent angina or a herpes vesicle. Patients with syphilis of the throat usually state that they have been suffering for several weeks from a sore throat which would not yield to treatment. Some complain of headache or of slight twinges of pain and obstruction in the ears. There is no fever. Many patients look the picture of health; others are weak and anemic. The peculiarity of the symptoms lies first in their mild nature and secondly in their long duration. Other diseases with similar symptoms have a more rapid course with more marked subjective and objective symptoms. If, in addition, he finds at the posterior edge of the sternocleidomastoid muscle a number of small, hard, indolent glands, he is almost sure of the diagnosis of syphilis, as scrofulous children seldom enter into the case.

Therapeutische Halbmonatshefte, Berlin

Sept. 15, 1920, **24**, No. 18

Diseases of the Ear. M. Maier.—p. 493. Cont'd.
The Drug Uzara. A. Gürber.—p. 496. Begun in No. 17, p. 465.
Use in General Practice of a Combination of Sodium Cacodylate and Strychnin. L. Veilchenblau.—p. 508.

Zentralblatt für Chirurgie, Leipzig

Sept. 25, 1920, **47**, No. 39

*Incision for Access to Stomach and Gallbladder. Linnartz.—p. 1194.
*Serodiagnosis and Immunotherapy in Carcinoma. W. Drügg.—p. 1198.
Bridging Over of Nerve Defects. F. Cahen.—p. 1202.
Wire Extension for Fractures. E. Herzberg.—p. 1205.

The Incision in Operations on the Stomach and Gallbladder.—After trying various incisions, during his twelve years' experience, Linnartz concluded that the incision parallel to the costal arch and at the level of the margin of the liver was the best. He used to divide the rectus muscle completely, but he came to regard the division of the muscle as a surgical crudity, at least in the cases in which a smaller opening will suffice. Later he divided the muscle half way, but of recent years he has discarded entirely the division of the muscle and has, at the same time, given another direction to the skin incision. He finds that a transverse incision perpendicular to the median line, a thumb's breadth above the umbilicus (the rectus muscle being pushed aside), is sufficient for uncomplicated cases requiring removal of the gallbladder; also for operations on the stomach. Hernias are avoided, the scar is scarcely visible, and the wound heals almost always by first intention. In a few cases in men it may be necessary to incise the rectus if it is unyielding. In rare cases the right-angle incision may be indicated, and even division of the rectus. The incision he advocates begins at the median margin of the rectus muscle, crosses the median line and divides the anterior aponeurosis and terminates at the junction of the seventh rib with the costal cartilage.

Serodiagnosis and Immunotherapy as Applied to Carcinoma.—Drügg states that it has been the object of much endeavor to discover in the early stages of carcinoma the fine changes that occur in the organism, but the attempts have not as yet been particularly successful. The difficulties of the problem are great and Drügg thinks it will be solved only after we have gained more thorough knowledge of the biology of this tumor and of the biologic relationship existing between it and its host. Abderhalden extended his studies on protective ferments to carcinomas, and the demonstration of carcinoma-destroying ferments in the blood serum of carcinoma

patients has led logically to the consistent administration of serum (horse serum, for exemple) containing such ferments, in hopes of forcing the formation of protective ferments in case they did not develop spontaneously, or of reinforcing them if they were present in inadequate quantities. Drügg reports in detail the results of his injections of protective horse serums in five cases of carcinoma. In Case 1 a woman, aged 43, had been suffering for years from multiple sclerosis. A plum-sized nodule was present in the left mamma—of recent origin, it was said. The left supraclavicular glands were enlarged and hard. An examination of tissue taken from the nodule yielded a diagnosis of hard carcinoma with scirrhous tissue. The blood of the patient was sent to Abderhalden for examination. He reported: "No digestion of carcinoma of the breast." During a period of twelve days, 200 c.c. of prepared horse serum (obtained after previous treatment with scirrhous carcinoma of the breast) were injected subcutaneously or intramuscularly. The temperature at first was 102.2 F. After the injections normal temperature returned at once. A general feeling of discomfort and of stiffness in the joints was present. At the site of the injections there was marked infiltration and some pain. At the site of the diagnostic excision a marked serous secretion appeared. Six weeks after beginning the injections the nodule in the breast could no longer be felt. The supraclavicular glands were unchanged.

The report from a second examination of the blood made by Abderhalden read: "Digestion of mammary fibroadenoma; slight digestion of mammary carcinoma." An examination after the lapse of three years revealed a pale, pliable scar. There were no nodules in the breast or in the scar. The supraclavicular glands were barely palpable. The wound had suppurated for several months and had then closed. The general health of the patient was good. In the four other cases reported, which were more advanced and more severe, although temporary relief was afforded, the fatal result could not be forestalled. Drügg offers this only as a preliminary report.

Zentralblatt für Gynäkologie, Leipzig

Sept. 25, 1920, **44**, No. 39

*Stricture of the Female Urethra. Heinrichsdorff.—p. 1081.
Two Cases of Fistula of the Cervix Uteri Caused by Attempts at Criminal Abortion. H. Becker.—p. 1084.
Blood Transfusion in Obstetrics and Gynecology. A. Vágó.—p. 1087.

Stricture of the Female Urethra.—In Heinrichsdorff's experience, urethral stricture in women has been a rare finding; he therefore gives an account of a peculiar case. The patient, a woman aged 65, had been suffering from involuntary dribbling of urine for about a year. Voluntary micturition was difficult. The urine passed contained considerable blood. The urethra was much constricted. The vicinity was infiltrated. The introduction of a very small catheter was difficult. Following its introduction, several liters of bloody, foul-smelling, dark-colored urine were withdrawn. Bladder lavage was done and by gradual dilatation of the urethra it was planned to introduce the cystoscope. The following day the patient had a high fever and her strength failed rapidly, for which reason the cystoscope was not used. Death in coma occurred on the third day. Necropsy revealed that the urethra in its proximal third was so constricted by a bean-sized, hard, rounded protuberance of the posterior wall that only small sounds could be passed. The wall of the neck of the bladder was hard and much thickened. The bladder itself was extremely large, the wall was stiff and in places a centimeter thick. In some places the bladder wall was thin and protruded outward. In the posterior, right, upper quadrant there was a dime-sized ulceration. Both ureters were thick as a finger, tortuous and filled with a purulent fluid. The kidneys were enlarged and very soft, studded with small abscesses, very little normal tissue being left. The condition was thus due to stenosis of the upper urethra, which had entailed retention and stagnation of urine and dilatation of the superior urinary passages, followed by their infection and a suppurative process throughout the kidneys. The inflammation of the mucosa of the bladder gave rise to a circumscribed ulceration, which may be regarded as the cause of the hemorrhage from the bladder. He thinks that cicatricial changes from obstetric trauma are probably responsible for the stenosis, his case thus confirming the assumption that urethral stricture in women is of traumatic origin.

Zentralblatt für innere Medizin, Leipzig

Sept. 25, 1920, **41**, No. 39

*Effect of Hypophysis Extracts on Secretion of Urine. F. Brunn.—p. 674.

Effect of Hypophysis Extracts on the Secretion of Urine.—Brunn states that while, on the basis of earlier animal experiments, it was reported that extracts of the hypophysis exert a diuretic effect on the secretion of urine, a large number of writers today agree that the subcutaneous injection of any of the commercial hypophysis preparations results in a checking of diuresis. Saxl and Brunn found that in from three to four hours after an injection of a hypophysis preparation a very small quantity of highly concentrated urine is secreted. In other trials an artificial polyuria was produced by allowing the subject to drink a liter of water; the half-hourly portions of urine were collected and the volume and specific gravity were determined. In from three to four hours the effect of the extract had worn off and copious diuresis set in, which corresponded to the normal results in experiments with water, only postponed, as it were, for four hours. The excretion of sodium chlorid was not affected, on the whole, by the extract. The checking of diuresis was more marked the greater the original water diuresis and the less the sodium chlorid diuresis; in other words, the more dilute the urine and the lower the specific gravity. As throwing light on the possible mechanism of the effect of hypophysis extracts on diuresis, Brunn calls especial attention to the fact that during the checking of diuresis marked hydremia is noted. This seems to point to a blocking in the kidney and opposes the assumption that the tissues under the effect of the extract hold back the water, to a great extent, and cannot give it off into the blood stream.

Mededeel. v. d. Burg. Geneesk. Dienst, Java

1920, No. 3. Parallel Dutch-English or German Edition

*Sterilization of Water with Lime. J. Smit.—p. 2.
*Destruction of Cellulose by Aerobic Bacteria. J. Groenewege.—p. 38.
Case of Autochthonous Infection with Actinomyces. J. A. De Nooy.—p. 146.

Purification and Sterilization of Drinking Water with Lime.—Smit reports that his extensive experiments with lime have confirmed its sterilizing and clarifying power for river water. He refers to the turbid, brown rivers of Java in which the amount of dissolved impurities and content of ammonia is small. The addition of milk of lime causes flaking of the colloid particles responsible for the turbidity. Ordinary laboratory filter paper retained practically all bacteria when the fluid passed through it had been rendered alkaline. His tabulations show that there is a possibility of obtaining nearly sterile water from turbid and greatly polluted water by mixing lime with it for just a few seconds, and passing the mixture through ordinary coarse filter paper, provided the first 250 c.c. be thrown away. His tests do not prove that the method can be applied on a large scale, with sand instead of paper, but they render it strongly probable. He reiterates that the filtrate only requires neutralization with carbon dioxid, which is harmless, to give a completely reliable, sufficiently soft and palatable water.

Destruction of Cellulose by Aerobic Bacteria.—Groenewege says that his research on septic tanks demonstrated that the aerobes play a much more important part in digesting cellulose than anaerobes. The exhaustive research here described has confirmed among other things that the cell produces an enzyme—cellulase—which is to cellulose what diastase is to starch. The cultures of bacteria on solid mediums which induce denitrification in cellulose seem to represent a kind of symbiosis, as he explains.

1920, No. 4

*"Low Fever." C. D. de Langen.—p. 48.
The Malaria Problem at Batavia. M. L. van Breemen.—p. 62.
Sugar Content of Blood During Voyage from Holland to Dutch Indies. H. Schut.—p. 116.

Calcium in Treatment of "Low Fever."—De Langen refers to the condition comparatively frequent in Europeans resid-

ing in tropical lowlands in which the temperature keeps slightly above normal without any appreciable cause. Those who are aware of this abnormal temperature are liable to dwell on it and begin to feel ill. If not, they may keep in good condition, and sooner or later the temperature subsides to the normal range. If the daily variations of temperature are greater, there is liable to be subjective malaise, and in twelve such patients examined the blood sugar was found above normal.

When the temperature returned permanently to normal, the blood sugar also returned to the normal level. De Langen arscribes the whole to exaggerated activity of the sympathetic nervous system, which he has found exceptionally common in the tropics, and consequently he has been treating these low fevers with calcium. This we know has a sedative influence on the sympathetic. A trip to the mountains is generally promptly successful in restoring the temperature and the sugar content of the blood to normal, but he has found almost equally effectual a course of treatment with calcium chlorid combined with Fowler's solution, supplemented with food containing calcium. In some cases the calcium has to be kept up indefinitely; in others one or two months is long enough. Epinephrin increases all the symptoms. No benefit was realized with pilocarpin which seems theoretically indicated.

A low fever was sometimes discovered in persons complaining merely of dull headache, or as a complication of quinin treatment. Dropping the quinin cured those in this group, and the calcium-Fowler's solution treatment cured those in the headache group. Subnormal temperature with headache in women may be due to endocrine deficiency. He has cured the serious headache in some cases of this kind with ovarian or thyroid treatment, but had no opportunity to examine the blood for sugar. He regards it as probable, however, that abnormal conditions in the autonomic nervous system are responsible for the disturbances. Chronic hyperthermia is common in children in his environment, and this too responds well to calcium, but he warns that the thermometer should not be applied to a child within an hour after a meal, and never unless the child has been resting quietly for half an hour. Otherwise, children have such unstable temperatures that fever may be assumed when the temperature is essentially normal. After recovery from a febrile disease, there may be long persisting slight temperature unless the child is sent to the mountains or takes calcium. In short, he declares, in the tropics the physician must not be too ready with the diagnosis of tuberculosis or malaria with persisting low fever.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Nov. 6, 1920, **2**, No. 19

*Diagnosis of Cerebellopontine Tumors. H. W. Stenvers.—p. 1871.
Difference in Onset of Organic and Genuine Epilepsy. J. J. H. M. Klessens.—p. 1883.
Advancing Spectacles to Adapt to Accommodation. C. O. Roelofs.—p. 1891.
*Poisoning from Chocolate. J. P. Asjes.—p. 1894.

Diagnosis of Cerebellopontine Tumors.—Stenvers states that in five of the six tumors of this kind he has had to examine, the neurologists and ophthalmologists consulted had diagnosed the case incorrectly until the roentgen-ray findings in the petrous bone gave the clue. He describes further a case of trigeminal and occipital neuralgia, with facial paresis, right hypoglossus paresis, slight changes in the fundus of the eye, abnormal corneal reflex, slight nystagmus, a tumor in the vicinity of the ear, disturbance in taste and partial deafness, with extreme sensibility to loud sounds. Muskens has reported an almost identical case and explained it as a cerebellopontine tumor, but in Stenvers' case necropsy revealed that the causal lesion was an extracranial metastasic tumor protruding into the middle cranial fossa. The pontine angle was normal. He adds that in every case of cerebellopontine angle tumor which he has examined, the petrous portion of the temporal bone was always found decidedly abnormal, and the roentgen examination invariably had revealed this anomaly in the petrous bone during life. The clinical-neurologic diagnosis should always be confirmed by roentgen examination of the petrous bone (*rotsbeen*).

Monomethylamin Poisoning.—The two children presented severe intoxication after eating some chocolate and drinking some buttermilk. They recovered, and Asjes' tests showed monomethylamin poisoning. He ascribes it to some contamination of the chocolate as it was being packed, with production of monomethylamin by bacteria. The chocolate had not tasted right, and the children had thrown away half of the piece.

Nov. 20, 1920, **2**, No. 21

Psychology of Reaction Processes. A. A. Grünbaum.—p. 2095.
Roentgen Ray Treatment of Mammary Cancer. C. H. Kok.—p. 2108.
*The Records of Medical Science. F. Hijmans.—p. 2112.
Hyperthermia as Phenomenon in Course of Abstention from Morphin. G. C. Bolten.—p. 2115.
Origin and Significance of Urobilinuria. A. Hoedemakers.—p. 2120.

The Records of Medical Science.—Hijmans offers some suggestions which he thinks would much facilitate the search through medical literature for articles on a special subject. Among them is his suggestion that the title of every medical article and abstract thereof should be accompanied by the decimal number which represents its classification by the librarians' method of decimal classification for books and documents. He also suggests means to avoid duplication of effort by different reviewers duplicating abstracts of the one article. For this he outlines international cooperation and national cooperation between medical journals, with an international central bureau.

Hygiea, Stockholm

Nov. 30, 1920, **82**, No. 22

*Impressions from a Visit to America. I. Holmgren.—p. 721.

Medical Impressions of America.—Forty-six pages and fifty-four illustrations give an informal account of Prof. Israel Holmgren's visit to some of the medical centers of this country a little over a year ago. He was accompanied by Prof. P. Haglund, also of the Stockholm medical school, and Prof. P. F. Holst of the Christiania school. One of the illustrations shows the building of the American Medical Association. The various departments and the features of the work done there are described in detail, especially the Spanish edition of THE JOURNAL and the card catalogue of physicians in the United States. "Each physician in the country," he says, "has an individual register, . . . and the information in regard to the antecedents of every physician is thus accessible at any moment if occasion arises to require it. . . . I am confident that this organization has done much for the rapid improvement of conditions for the members of the profession in the United States." In speaking of the absence of wine at the hotels, he remarks that the diners seem to derive the same effect from dancing between the courses of the dinner as from the wine served in Sweden. The nurses' homes in the different cities, the management of the hospitals, the way in which the physicians make their rounds, the Swedish hospital in Chicago and elsewhere, the plans of the hospital buildings in general, and the private homes of the physicians who entertained him are described, as also the research being done by Carrel and others in the institutions he visited. (His account of his visit to the headquarters of the American Medical Association was translated in full on page 188.)

Ugeskrift for Læger, Copenhagen

Nov. 18, 1920, **82**, No. 47

*Variations in Erythrocyte Count in the Normal. K. Bierring.—p. 1445.
*Postoperative Atony of the Stomach. I. Hansen.—p. 1450.

Variations in the Erythrocyte Count in the Normal.—Bierring found differences up to 2,400,000 in the blood at different times in healthy persons. There does not seem to be any regularity about the fluctuations and they occur indiscriminately in men and in women.

Postoperative Atony of the Stomach.—The extreme dilatation of the stomach was combated with lavage of the stomach and a dose of 1 mg. of strychnin nitrate. Recovery followed without the necessity for postural treatment which would have been very painful on account of the preceding laparotomy and relaparotomy that had been done on suspicion of a vicious circle.